

# IEA Implementing Agreement on Advanced Motor Fuels und verkehrstechnische Umsetzung von dessen Ergebnissen in den EU-Technologieplattformen BIOFUELS, ERTRAC und der nationalen Plattform A3PS

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BMVIT

# IEA Implementing Agreements on End-use / Transport Technologies:

- Advanced motor fuels
- Advanced Fuel Cells
- Hybrid and electric vehicles
- Advanced materials for transportation

# IEA – AMF active Annexes

XXVIII: Information Service & AMF Website (AMFI)

XXXIII: Particle Emissions of 2-S Scooters

XXXIV: Analysis of Biodiesel Options

XXXV: Ethanol as a Fuel for Road Transportation

XXXVI: Measurement Technologies for Ethanol

XXXVII: Fuel and technology alternatives for buses

# IEA – AMF completed Annexes

- I: Alcohols and Alcohol Blends as Motor Fuels
- II: Technology Information Exchange on Alternative Motor Fuels
- III: Diesel Field Trials and Diesel field Trials Analyses
- IV: Production of Alcohols and Other Oxygenates from Fossil Fuels and Renewables
- V: Performance evaluation of alternative fuel/engine concepts
- VI: State-of-the-art Report on Natural Gas as a Motor Fuel
- VII: Comparison of Relative Environmental Impacts of Alternative and Conventional Fuels
- VIII: Heavy-Duty Vehicles on Alternative Fuels
- IX: Automotive Fuels Information Service
- X: Characterisation of New Fuel Qualities
- XI: Forecasting and Planning Tools for Alternative Fuels and Infrastructure
- XII: Particulate Emissions from Alternative Fuelled Vehicles
- XIII: Emission performance of selected biodiesel fuels
- XIV: Feasibility of DME as a Fuel in Diesel Engines

# IEA – AMF completed Annexes

- XV: Implementation Barriers of Alternative Fuels
- XVI: Biodegradable Lubricants
- XVII: Real Impact of New Technologies for Heavy-Duty Vehicles
- XVIII: Future Greener Diesel Fuels
- XIX: New Fuels for New Engines
- XX: DME as an Automotive Fuel II
- XXI: Deployment Strategies for Hybrid, Electric and Alternative Fuel Vehicles
- XXII: Particulate Emissions at Moderate and Cold Temperatures Using Different Fuels
- XXIII: Cancelled
- XXIV: Advanced Motor Fuel Information Exchange
- XXV: Fuel Effects on Emissions from Non-Road Engines
- XXVI: Alcohols and Ethers as Oxygenates in Diesel Fuel
- XXVII: Standardization of Alternative Fuels
- XXIX: Evaluation of Duty cycles for Heavy-Duty Urban Vehicles
- XXX: Bio-safety Assessment: Animal Fat in Biodiesel
- XXXI: Production and use of Synthetic Vehicle Fuels by Fischer-Tropsch

# IEA-AMF Strategic Plan 2005-2009

Three strategic objectives were defined:

1. Information and Membership: to gather, evaluate and disseminate information on advanced motor fuels and to act as a clearing-house on related information. To provide an easy-access platform for interested parties to join AMF as members.
2. Cooperative R&D, deployment and dissemination: to create, maintain and make use of networks among partners involved in research, development, demonstration and deployment related to advanced motor fuels.
3. Markets and general cooperation: to facilitate large-scale market deployment of advanced motor fuels by removing technical, economical and political barriers.

# IEA-AMF Strategic Plan 2005-2009

Advanced motor fuels are defined as fuels fulfilling one or more of the following criteria:

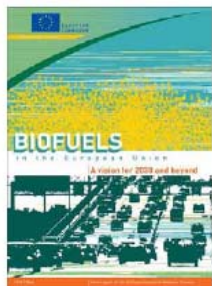
1. Low toxic emissions
2. Improved life-cycle efficiency
3. Reduced greenhouse gas emissions/utilisation of renewable energy sources
4. Enabling fuels for new propulsion systems (includes fuels for new drivetrain concepts as fuel cells.
5. Fuels contributing to sustainability in transportation
6. Fuels contributing to security of supply

# Technology Platform Biofuels

The Mission of the European Biofuels Technology Platform is to contribute to the development of:

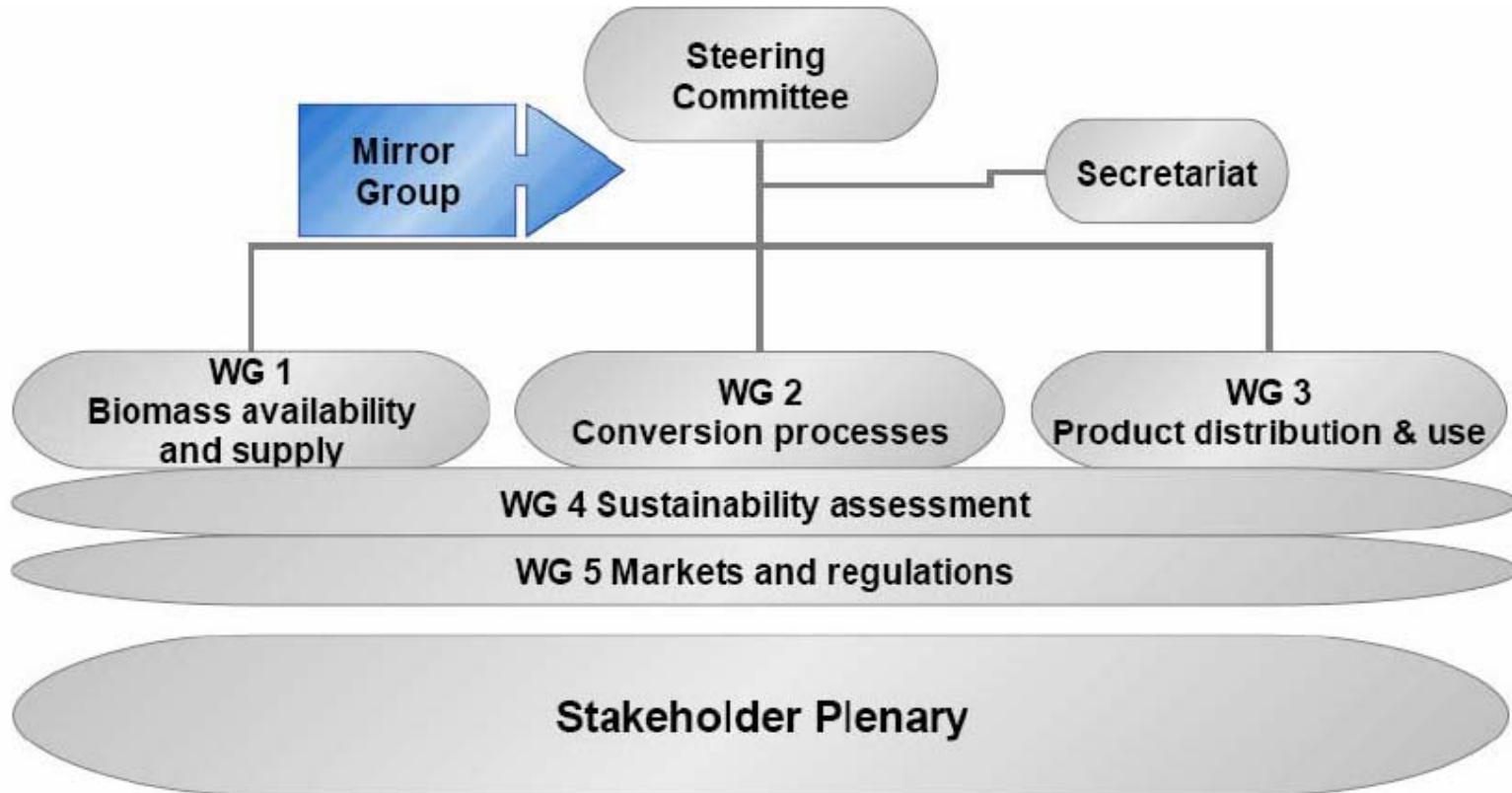
- Cost-competitive world-class biofuels technologies,
- A healthy biofuels industry supplying sustainable biofuels in the European Union

through a process of guidance, prioritization and promotion of research, development and demonstration.





# TP Biofuels: organisation



# Strategic research agenda: main conclusions

Three main areas of technology development are critical to ensure successful development of sustainable biofuels in the European Union:

- FEEDSTOCKS

Managing competition for land resources (food and fodder vs. bioenergy) and for different biomass applications (transportation fuels, heat, industrial raw materials)

- CONVERSION TECHNOLOGY

Developing energy efficient and reliable biomass-to-fuel conversion processes with feedstock flexibility and high quality product.

- LOGISTICS AND END-USE TECHNOLOGIES

Optimization of fuel-engine environmental and energetic performance ensuring compatibility with existing and future infrastructure and vehicles

# Biofuels: end-use in vehicles

Fuel supply system	Engine		Exhaust gas treatment	Vehicle
	Combustion	Mechanics		
<p>Long-term fuel storage</p> <p>Material compatibility with: fuel tank, seals/gaskets, hoses/pipes</p> <p>Compatibility with: fuel filters, fuel pumps, fuel reformer</p>	<p>Engine power</p> <p>Fuel efficiency</p> <p>CO2 efficiency (TTW)</p> <p>Emissions</p> <p>Cold start ability</p> <p>Hot driving performance</p> <p>Noise</p> <p>Compatibility with existing engine technology</p> <p>Potential for late homogenization (diesel engine)</p>	<p>Injector cleanliness</p> <p>Combustion chamber cleanliness</p> <p>Friction</p> <p>Engine oil compatibility</p> <p>Overall reliability</p> <p>Overall durability</p>	<p>Oxidation catalyst</p> <p>DPF performance</p> <p>DPF regeneration</p> <p>Three-way catalyst</p> <p>Advanced TWC</p> <p>SCR catalyst</p> <p>NOx storage catalyst</p> <p>Sensors (NOx, <math>\lambda</math>)</p>	<p>Driving range</p> <p>Health</p> <p>Safety</p>

# Strategic Deployment Document: recommendations for biofuels deployment

- A coherent, long term and harmonized political and open market framework to secure confidence of investors in capital-intensive innovative technologies
- Joint public/private financing for R&D and demonstration of new biofuels production routes and end-use applications. Additional public funding for higher risk large-scale demonstration facilities
- Biofuels quality standards based on sound science while not creating unnecessary barriers for biofuel deployment
- A simple, coherent and global certification system to ensure environmental, economic and social sustainability of biofuels production chains
- Social awareness and acceptance gained by open communication on benefits as well as on potential limitations on biofuels

# Member States recommendations reflecting SRA and SDD:

- R&D is the key to bring costs down and to multiply the biofuel yield per acreage in order to avoid competition with food production
- Social acceptance is crucial, taking ethical considerations and environmental consequences into account. A certification system is needed to guarantee sustainability standards as foreseen in EU directive.
- Predictable framework conditions are needed to establish confidence of investors to implement capital-intensive innovative technologies.
- Efficient information system needed to avoid data misinterpretation.
- Even if national policies are different due to structural and climatic differences, member states are united by the common goal of a sustainable transport and energy system and the targets set on the EU-level for greenhouse gas emissions reduction.

# ERTRAC

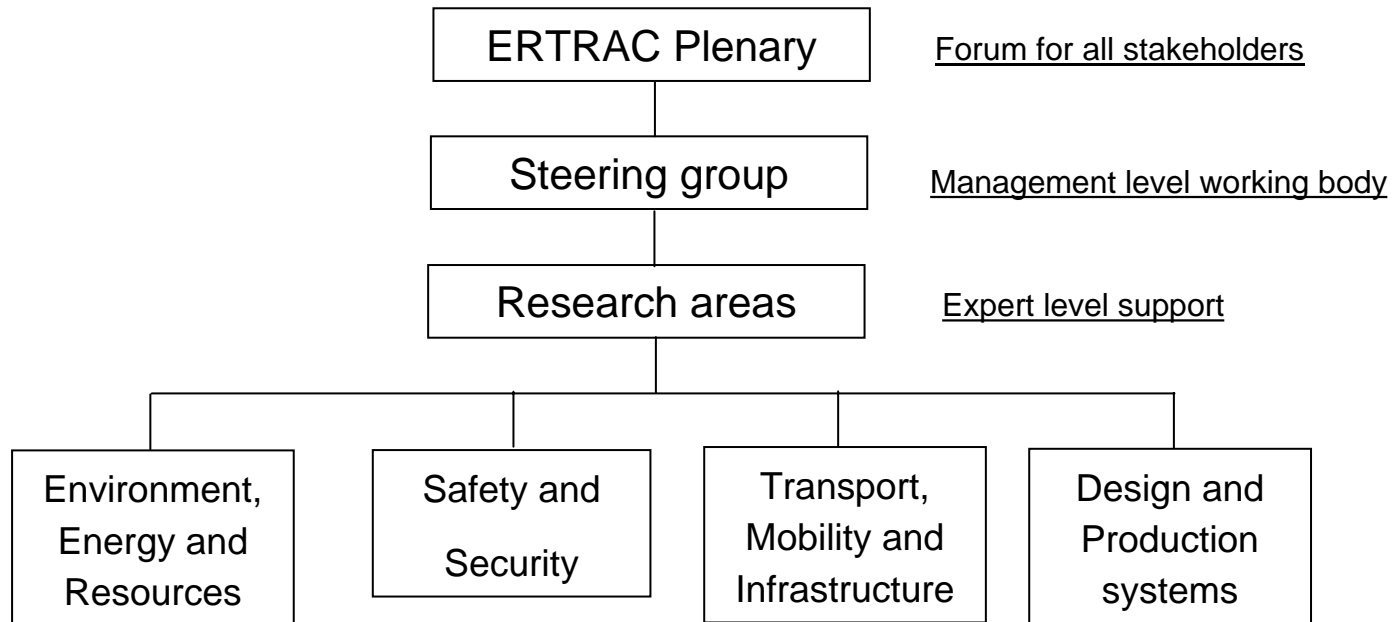
The European Road Transport Research Advisory Council was established to mobilise all involved sectors in order to develop a shared vision and ensure the coordination of research resources in order to meet the challenges of road transport and keep European competitiveness.

## Sectors involved:

Vehicle manufacturers	EU and national bodies	Research providers
Automotive suppliers	Cities and regions	Intelligent transport systems
Energy/fuel supply	Service providers	Road infrastructure
	Users/consumers	

# ERTRAC: organisation

More than 50 member organizations representing all sectors of the road transport industry, non-governmental organizations, Member States and the European Commission.



# ERTRAC: Strategic research priorities

ERTRAC Research Framework “Steps to implementation” – Update in March 2008: the strategic research priorities have been aligned around four major challenges:

- Urban mobility
- Energy, resources and climate change
- Long distance freight transport
- Road transport safety



# A3PS - Austrian Agency for Alternative Propulsion Systems

- Stimulierung der Zusammenarbeit komplementärer Partner, Aufbau interdisziplinärer Forschungs Kooperationen und branchenübergreifender Pilot- und Demonstrationsprojekte.
- Internationale Vernetzung sowie Marketing für österreichische Technologiekompetenz, Engineering and Know-how der Mitglieder durch Publikationen und Präsentationen auf Konferenzen. Förderung der Beteiligung österreichische Forschungsinstitutionen in EU-Projekten, - Programmen, Technologieplattformen sowie Vertretung von deren Interessen in EU oder IEA-Gremien und bei der Gestaltung des 7. EU-Rahmensprogramms.

# A3PS – Austrian Agency for Alternative Propulsion Systems

- Unterstützung bei der Beschaffung, Kompilierung und Analyse von Informationen (Technology Foresight and Assessment, Vergleichende Bewertung von Studien, Analyse von internationalen F&E Strategien, Organisation von Fachvorträge und Seminare).
- Schaffung innovationsfördernder Rahmenbedingungen um Markteintritts-Barrieren zu überwinden (Ordnungs- und Fiskalpolitik, Treibstoffbesteuerung, Dotierung der Förderinstrumente, technische Normen, Sicherheitsstandards, Emissionsgrenzwerte)

# A3PS - Austrian Agency for Alternative Propulsion Systems

Als strategische Public-Private-Partnership, unterstützt die A3PS ihre 27 Mitglieder bei der Entwicklung und Markteinführung alternativer Antriebssysteme.



# Industrie

- AVL LIST GmbH
- Bitter GmbH
- Fronius International GmbH
- GE Jenbacher GmbH & Co OHG
- MAGNA STEYR Fahrzeugtechnik AG & Co KG
- OMV Refining & Marketing GmbH
- PLANSEE SE

# Universitäten

- TU Graz – Inst. f. Chemische Technologie Anorganischer Stoffe
- TU Graz – Inst. f. Elektrische Messtechnik u. Messsignalverarbeitung
- TU Graz – Inst. f. Verbrennungskraftmaschinen u. Thermodynamik
- TU Wien – Inst. f. Chemische Technologie u. Analytik
- TU Wien – Inst. f. Elektrische Anlagen u. Energiewirtschaft
- TU Wien – Inst. f. Thermodynamik u. Energiewandlung
- TU Wien – Inst. f. Verbrennungskraftmaschinen u. Kraftfahrzeugbau
- TU Wien – Inst. f. Verfahrenstechnik, Umwelttechnik, Technische Biowissenschaften
- BOKU – Department f. Nachhaltige Agrarsysteme, AG Tierhaltungs- u. Umwelttechnik

# KMU und Forschungszentren

- ALPPS Fuel Cell Systems
- Bitter GmbH
- HyCentA Research GmbH
- JOANNEUM RESEARCH Forschungsgesellschaft mbH
- arsenal research – Österreichisches Forschungs- u. Prüfzentrum Arsenal GmbH
- Austrian Research Centers GmbH – ARC
- ECHEM – Kompetenzzentrum f. Angewandte Elektrochemie GmbH
- PROFACTOR GmbH
- ABC – Austrian Bioenergy Centre GmbH
- Biovest Consulting
- Österreichischer Wasserstoff Verband (ÖWV)

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