European Union Policy Promoting Bioenergy

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Overview of Presentation

- EU Bioenergy policy and legislation: the new renewable energy directive
- Addressing needs for technology development
- The SET-Plan and the European Industrial Bioenergy Initiative

The new Legislative Framework: Renewable Energies Directive (RED) 2009/28/EC

DIRECTIVE 2009/28/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 23 April 2009

on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC

(Text with EEA relevance)

- Binding national targets 20 % share of RES in final energy consumption, 20 % increase in energy efficiency
- 10% renewable energy target in transport
- Sustainability criteria and monitoring for biofuels; harmonised approach with Fuel Quality Directive

Renewable Energies Directive 2009/28/EC

The Timetable:

25 June 2009	Entry into Force
June 2010	National Action Plans Ready
December 2010	National Legislation implemented
2020	20% targets achieved – 10% for renewables in transport (per country)
(January 2017	Step increase in CO_2 savings for biofuels)

Biofuels sustainability scheme & monitoring

- Applies to single consignments of biofuel
- Single EU scheme (not national)
- Applies to both EU production and imports
- System for biofuels and bio-liquids included in directive, review for other forms of bioenergy by end of 2009
- Accompanied by monitoring rules in the EU and third countries

Greenhouse gas impact - biofuels

- Sustainability criterion:
  - Minimum requirement for GHG saving, relative to fossil fuel, of at least 35%*; rising to 50% in January 2017; and 60% in January 2018 for new installations commissioned after start of 2017.
  - *For plants operating in Jan 2008, start in April 2013.
  - Rules for calculation of GHG saving (Article 19)
  - Use of default values to reduce administrative burden

GHG savings for biofuels in the RED

	Typical saving	Default saving
Sugar beet ethanol	61%	52%
Wheat ethanol	45%	34%
Sugar cane ethanol	71%	71%
Rape seed biodiesel	45%	38%
Palm oil biodiesel*	62%	56%
Biogas from waste	80%	73%
Biogas from wet manure	84%	81%
Wheat straw ethanol	87%	85%
Farmed wood ethanol	76%	70%
Waste wood F-T diesel	95%	95%
Farmed wood F-T diesel	93%	93%

* Calculation based on emissions for cultivation/harvesting, transport and the conversion process, but excluding land use change: comparison is fossil fuel

2nd Generation Biofuels under the RED

(Art. 21.2): Biofuels from wastes, residues, non-food cellulosic material and ligno-cellulosic materials

will count double

towards national renewable energy obligations placed on operators, and the target for energy from renewable sources in all forms of transport.

Grid Access for Electricity/Gas/Heat

(Art. 16.1): requirement to develop transmission and distribution grid infrastructure, intelligent networks, storage facilities and the electrical system, to accommodate the growing production of renewable electricity (i.e. facilitating grid connections)

(Art. 16.10): common rules for the natural gas grid - gas quality, odorisation and pressure – published connection tariffs for injection of renewable gas sources

(art. 16.11): requirement to assess need for infrastructure for district heating and cooling from renewable sources

Reaching the Bioenergy targets in the EU

	2006	2010 target	2020 target
All renewables:	7%	12%	20%
Biofuels:	1%	5.75%	up to 10%
Green electricity:	15%	21%	(no sectoral
Heating/ cooling:	9%	none	target)
Biomass:	71 Mtoe	150 Mtoe	195 Mtoe
Green electricity:	18 Mtoe		62 Mtoe +44
Biofuels:	3 Mtoe		43 Mtoe +40
Heating:	50 Mtoe		90 Mtoe +40

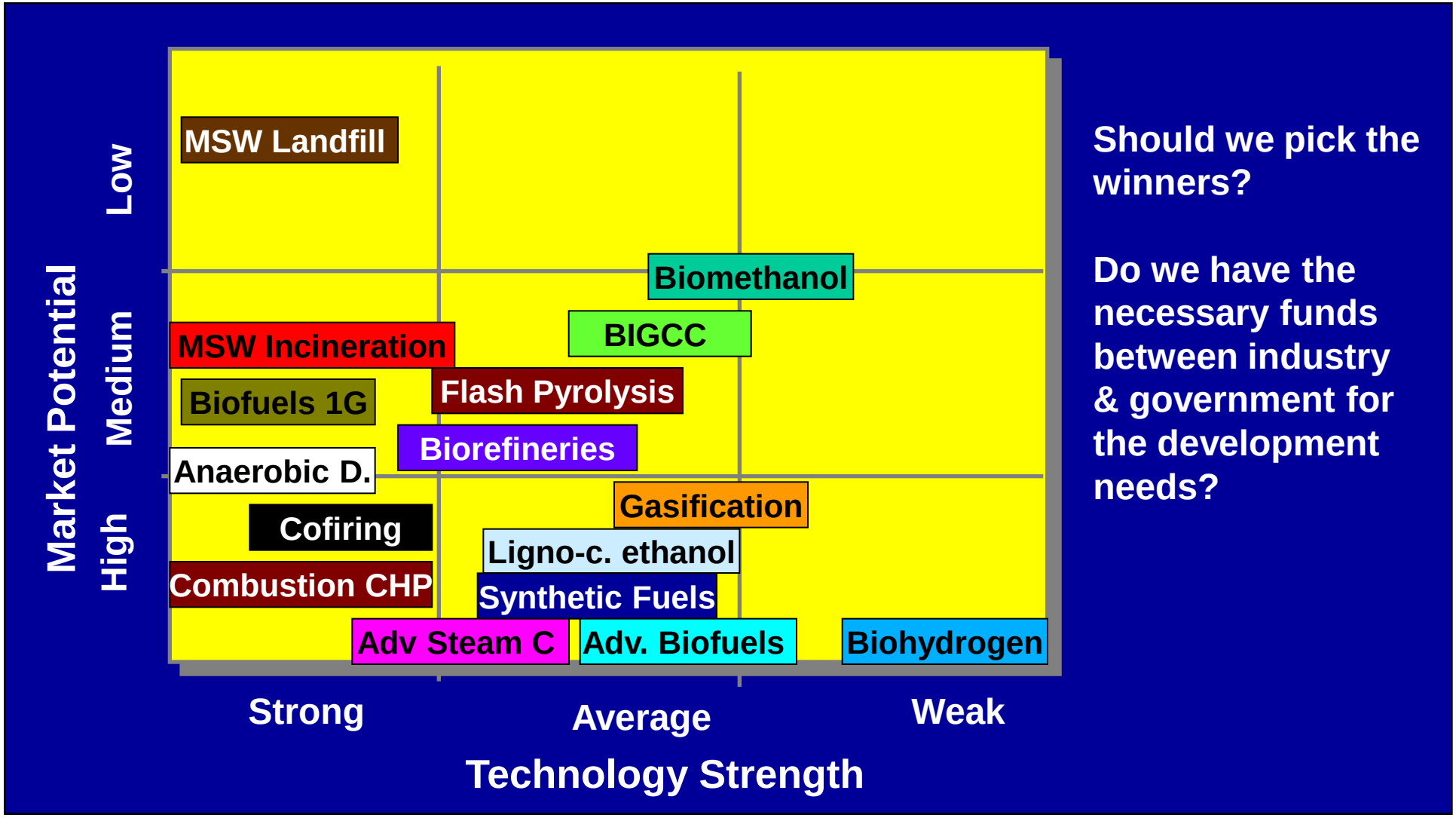
What is the role of technology innovation?

Do we have reliable technologies to address the demands posed by legislation on the Bioenergy industry?

Do we have the appropriate technologies to develop new energy crops?

Which conversion technologies need financial support?

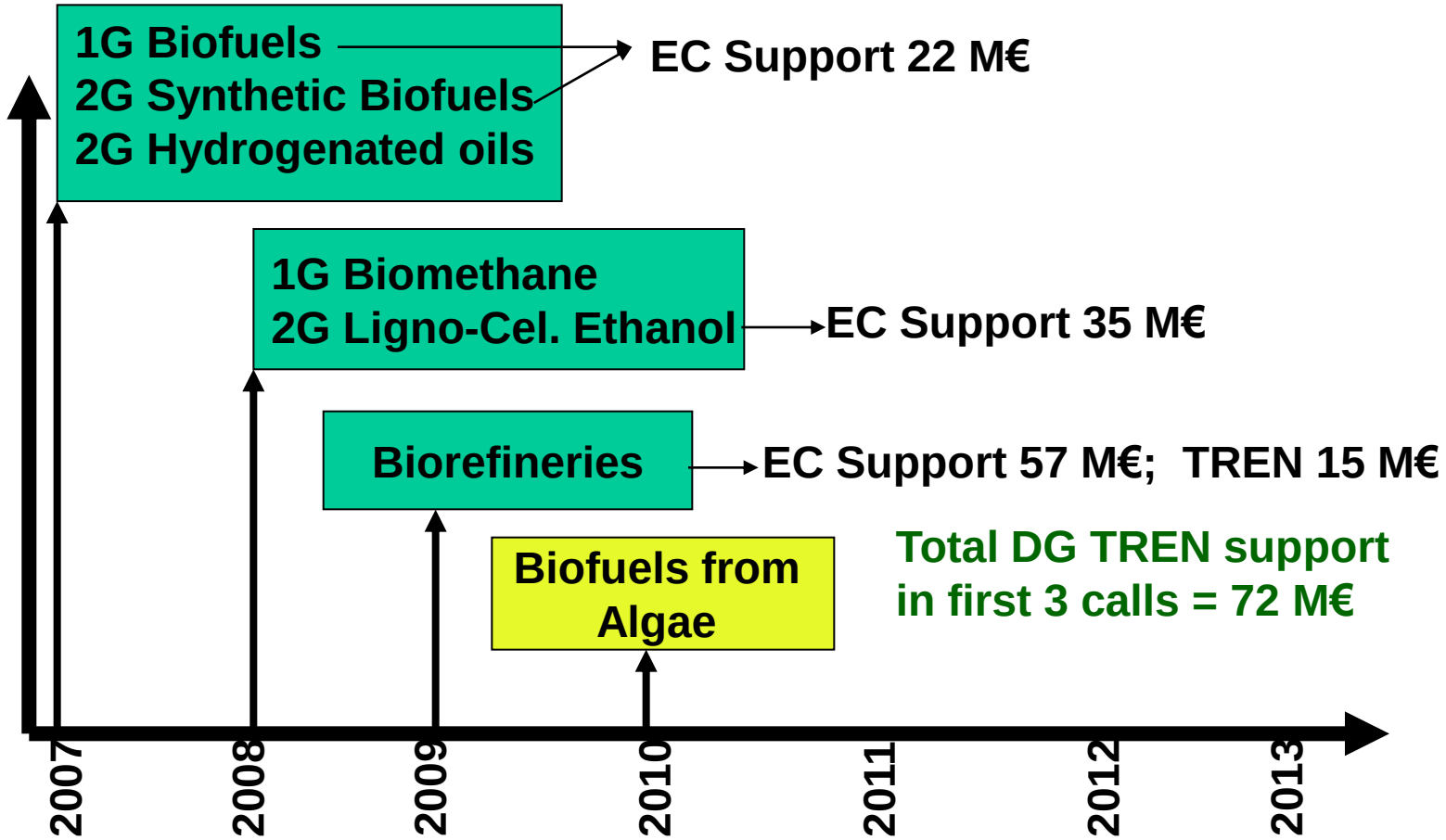
Status of Processes



Should we pick the winners?

Do we have the necessary funds between industry & government for the development needs?

Support to Research: FP7 Calls: Strategy for Biofuels: 2007-2010



Implementation Measures: The SET-Plan

- Joint strategic planning
  - Steering group + Information System
- Effective implementation:
  - **European Industrial Initiatives**: strategic technology alliances.
  - European Energy Research Alliance
  - Trans-European Energy Networks and Systems of the Future
  - Transition planning
- Increase in resources, both financial and human.
- International cooperation

The European Industrial Bioenergy Initiative

- Under preparation in coordination with the Biofuels Technology Platform and other Biomass Associations
- Expected total recommended budget in the range of 6-8 billion €
- EC estimation at about 8 billion €
- Value chain cost 300 M€, 2nd & 3rd plant 15% less
- Development of bio-resources (crops & waste) 1 billion €

European Industrial Bioenergy Initiative (EIBI)

Value Chains:

1. Synthetic fuels/hydrocarbons via gasification
2. Synthetic natural gas via gasification
3. Higher efficiency power generation via gasification
4. Intermediate bioenergy carriers via thermochemical processes
5. Ethanol and higher alcohols from carbohydrates
6. Renewable hydrocarbons from carbohydrates via biological and/or chemical processes
7. Bioenergy carriers from CO_2 and sunlight through micro-organisms and up-grading to transport fuels and valuable bio-products

FP7 Ongoing Project - EC Support 7.8 M€

OPTFUEL Contract Consortium led by VW

FP7 Ongoing Project - EC Support 8.2 M€

FP6 Ongoing Project – 3.2 M€
Synthetic Bio Methane

Based on the Güssing ICFB technology

Biomethane will be used in transport (buses) and fed into a NG pipeline.

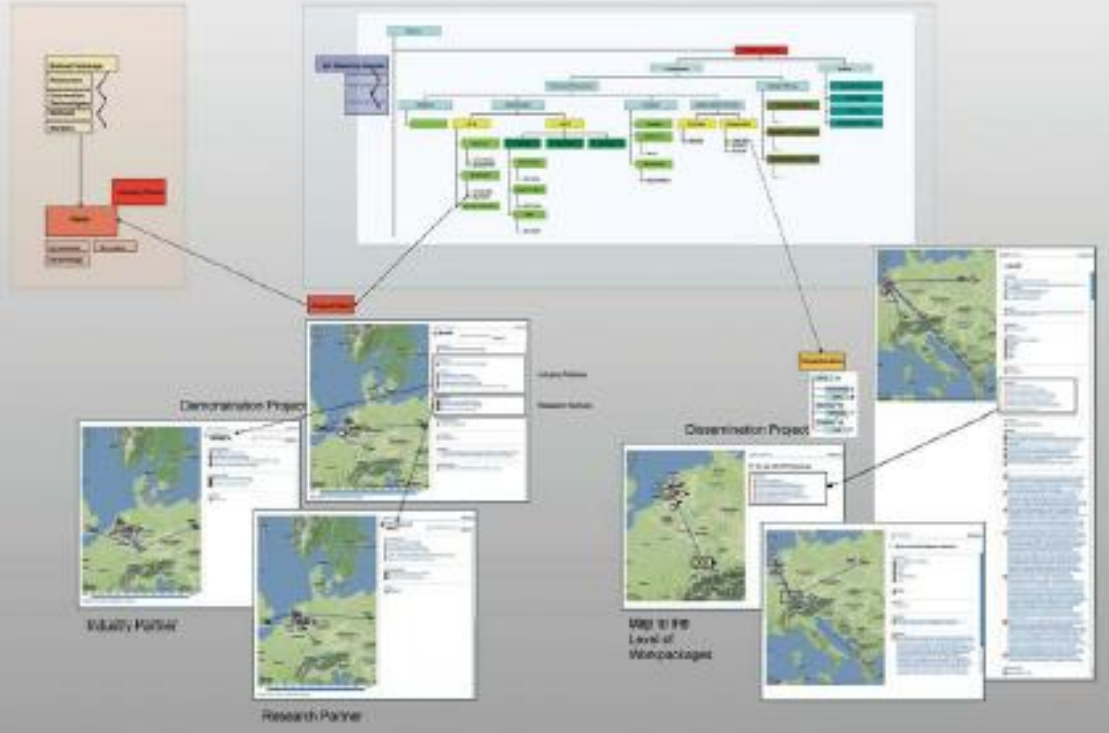
Co-processing biomethane with natural gas

BIOMAP

http://www.eu-biomap.net/

BIOMAP mapping tool
Time-enabled Mapping and Dissemination Tool for Biofuels Projects

The BIOMAP project, financed by the EC FP7, has been designed as a visual navigable dissemination and mapping tool for Biofuels production and use in Europe and beyond. BIOMAP tool is based on the use of electronic maps (such as Google Maps) and combined with a navigational structure linking interrelated entities. It maps activities on biofuels projects across different sectors and programmes, for example: Bioethanol, Biodiesel, European Commission Framework Programmes, National Programmes. It also incorporate mechanisms to enable a synthesis of information displayed on selected maps, for example a calculation of total funding across the projects located in a particular geographical region or a specified timeframe (e.g. period 2003-2005, or duration of FP6).



BIOMAP partnership
Exergia S.A., GR
ICL/King's College London, UK
ACL/University of Sydney, AU
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Summary

The Commission considers that the project portfolio under FP7 forms a good basis of the European Industrial Bioenergy Initiative.

The support provided by:
- the political framework of the RES Directive, and
- the implementation of the European Industrial Bioenergy Initiative

will ensure market deployment of all bioenergy technologies, including 2nd generation biofuels technologies.

Thank you for your attention