



State of play dei biocarburanti nella nuova direttiva sulle fonti rinnovabili di Energia

Le posizioni delle industrie Europee ed Italiane

David Chiaramonti
RE-CORD/University of Florence
c/o Dept.of Industrial Engineering, Univ.of Florence, Italy

Venerdì, 16/2/2018, ore 9,30-13,30
Sala del Parlamentino - Ministero dello Sviluppo Economico - Via Molise 2, Roma

Outlook

- 01** ART Fuel Goals & Objectives
- The Platform **02**
- 03** REDII and AFF Key Messages
- Conclusions **04**

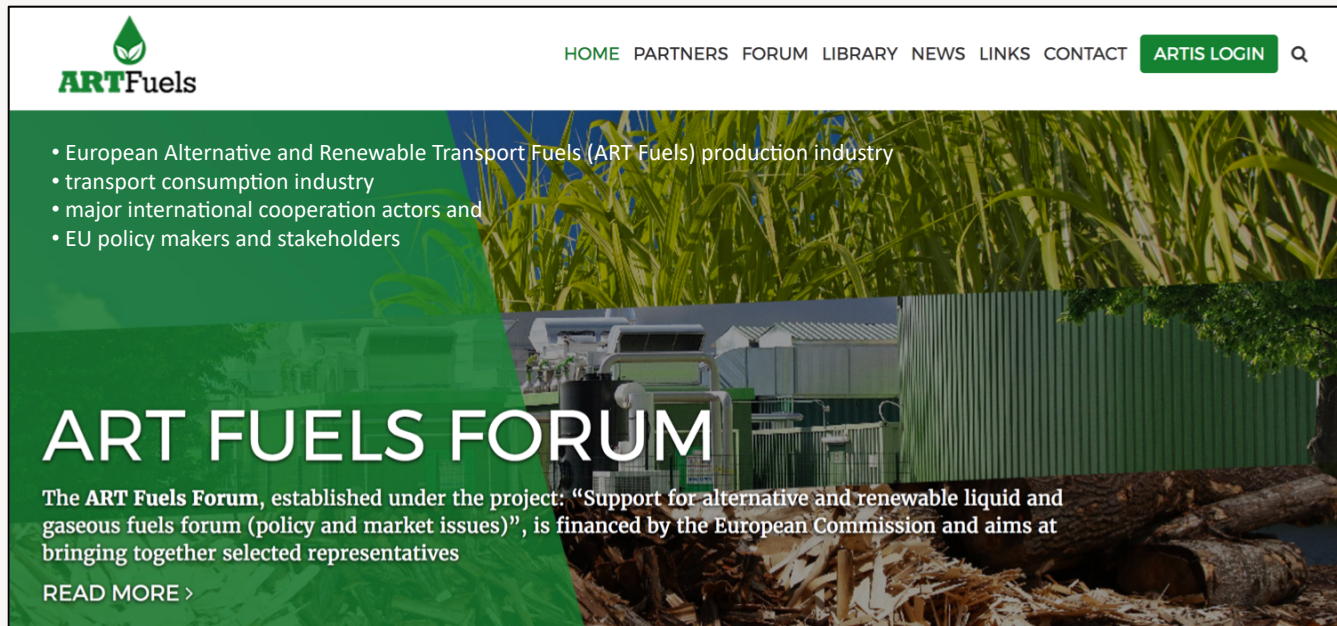
slide 1

01

ART Fuels Goals & Objectives

ART Fuels Forum (H2020) - *Altern.&Ren.Transport Fuels*

- Alternative and Renewable Fuels Forum – supported by EC-DG Energy
- Goal: Market & Policies post 2020 (to 2030).
- ~ 100 participants (Members, Affiliate, Observers).



The screenshot shows the ART Fuels Forum website. At the top is the ART Fuels logo and a navigation menu with links: HOME, PARTNERS, FORUM, LIBRARY, NEWS, LINKS, CONTACT, and an ARTIS LOGIN button. Below the navigation bar is a large banner image featuring a field of corn and a biofuel processing facility. On the left side of the banner, there is a list of bullet points: European Alternative and Renewable Transport Fuels (ART Fuels) production industry, transport consumption industry, major international cooperation actors and, and EU policy makers and stakeholders. The main heading 'ART FUELS FORUM' is prominently displayed in the center of the banner. Below the heading, a paragraph describes the forum's establishment under a project supported by the European Commission, aimed at bringing together selected representatives. A 'READ MORE >' link is provided at the bottom left of the banner.

- European Alternative and Renewable Transport Fuels (ART Fuels) production industry
- transport consumption industry
- major international cooperation actors and
- EU policy makers and stakeholders

ART FUELS FORUM

The **ART Fuels Forum**, established under the project: “Support for alternative and renewable liquid and gaseous fuels forum (policy and market issues)”, is financed by the European Commission and aims at bringing together selected representatives

[READ MORE >](#)



<http://artfuelsforum.eu/>

02

The Platform

The ART Fuels Forum (AFF) Industrial Platform



Support for alternative and renewable liquid and gaseous fuels forum

(policy and market issues)

The **ART Fuels Forum** established under the project: "Support for alternative and renewable liquid and gaseous fuels forum (policy and market issues)", is financed by the European Commission and aims at bringing together selected representatives of:

- the European **Alternative and Renewable Transport Fuels (ART Fuels)** production industry
- the transport consumption industry
- the main international cooperation actors and
- the EU policy makers and stakeholders

towards facilitating discussion and elaboration of common issues on policy and market penetration barriers for these fuels.

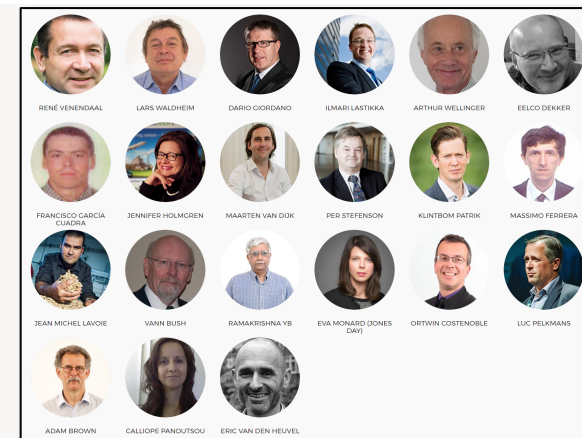
The project contributes to enhancing and strengthening the understanding of the needs of the ART Fuels sector in view of improving:

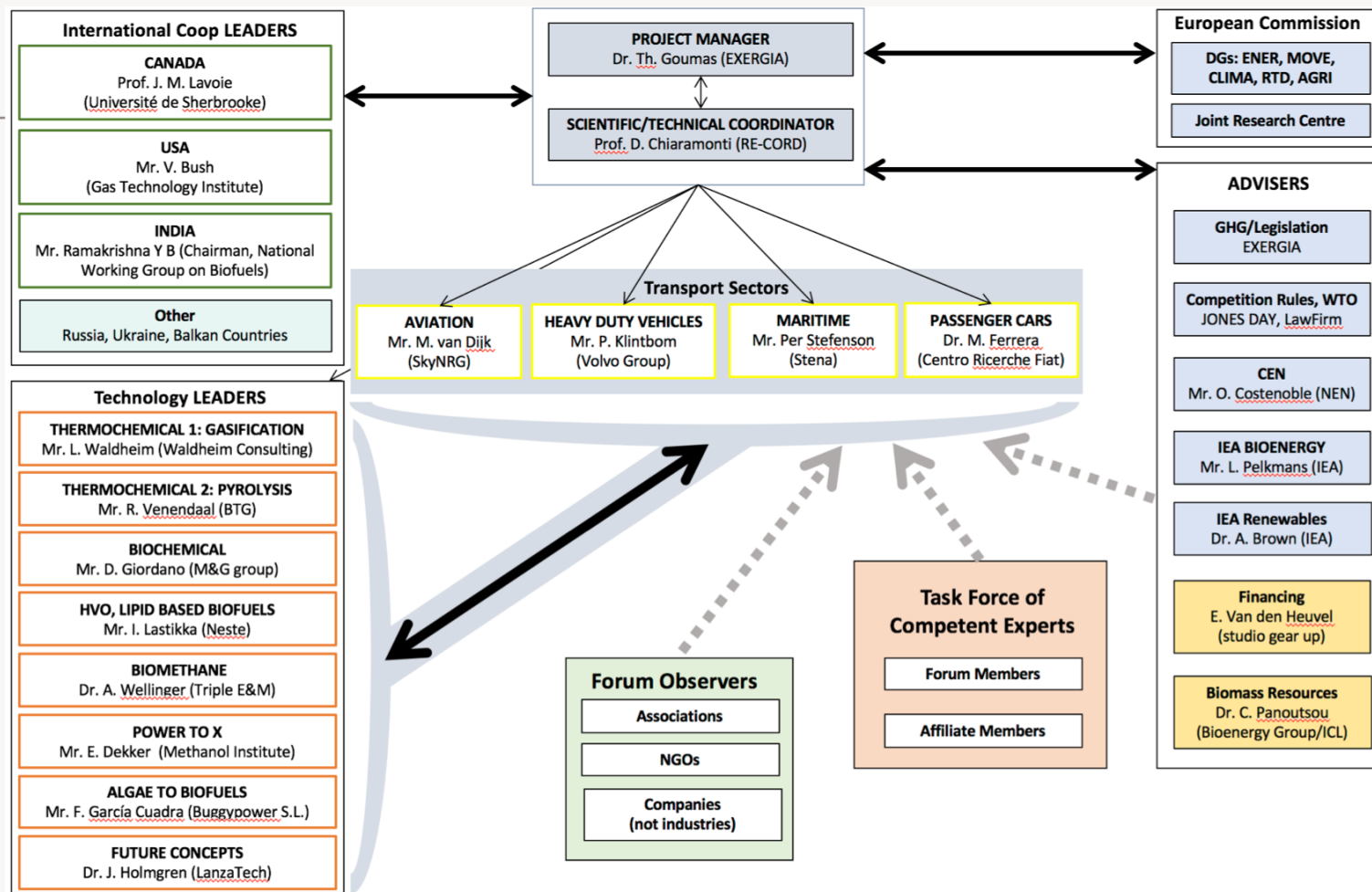
- policy understanding and its implementation at European level
- appreciation of market uptake issues
- technology insight and deployment issues
- appreciation of international cooperation, WTO and GHG emissions issues

The Forum integrates a series of organized and structured discussions, plenary meetings, preparation of position papers, etc. towards shaping strategies and policies for market deployment of ART Fuels. ❖



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Agreements with International Institutions

- Agreements have been/are being signed with the following organisations:

Workshop

10-11/4/2018

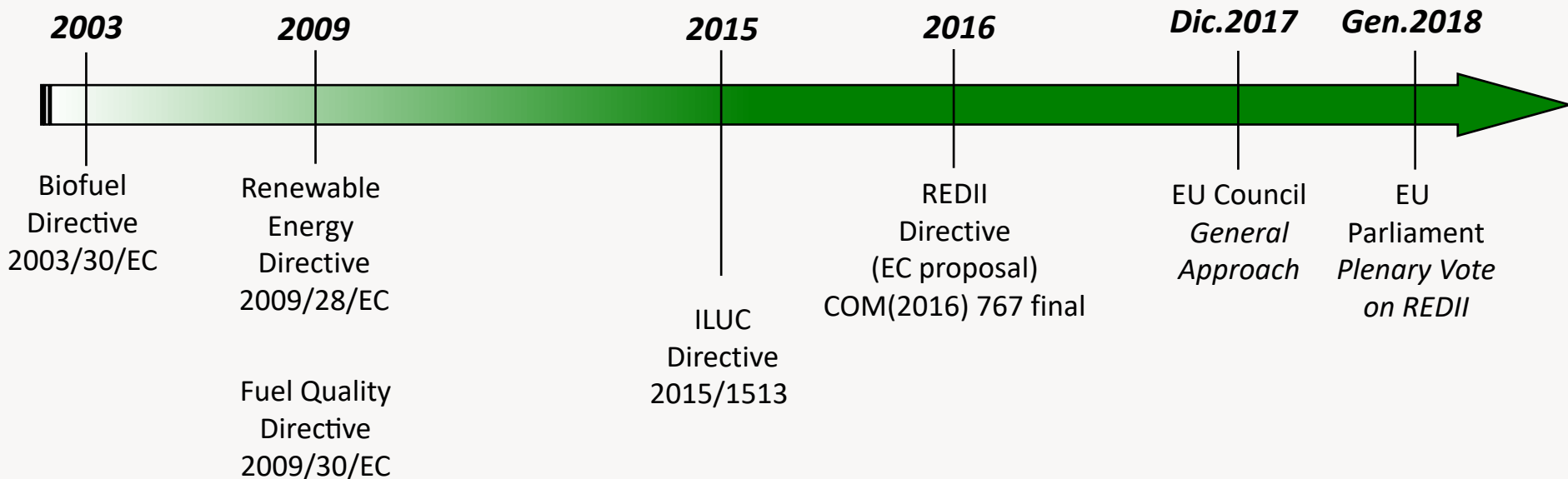
Brussels, BE



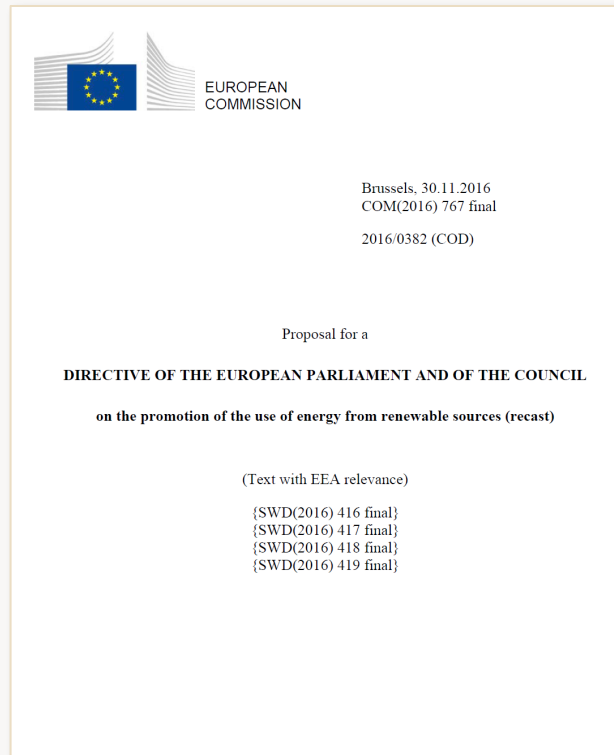
03

REDII and AFF Key Messages

Summary of Legislative pathway to REDII



- EC proposed the new Directive on Renewable Energy (REDII) on Nov 2016
 - Following SubGroup on Advanced Biofuels - SGAB
 - SGAB work was endorsed by the ART Fuel Forum, which is further elaborating industry views and messages
 - ✓ Industry needs certain conditions to invest in **Demo** and **First-Of-A-Kind (FOAK)** plants
- ☐ The **Definition of AB** and ART Fuel was among the very first issues tackled.



Advanced Biofuel -RED/ILUC Dir.s (Annex IX - Part A)

15.9.2015

EN

Official Journal of the European Union

I

(Legislative acts)

DIRECTIVES

DIRECTIVE (EU) 2015/1513 OF THE EUROPEAN PARLIAM

of 9 Septe

amending Directive 98/70/EC relating to the quality of petrol and diesel fuels and amending Directive 2009/28/EC on the promotion of the use of energy from renewable sources

(Text with EEA relevance)

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION

Having regard to the Treaty on the Functioning of the European Union, in particular Article 114 thereof in relation to Article 1(3) to (13) and Article 17(1) thereof,

Having regard to the proposal from the European Commission,

After transmission of the draft legislative act to the national parliaments,

Having regard to the opinion of the European Economic and Social Committee,

After consulting the Committee of the Regions,

Acting in accordance with the ordinary legislative procedure,

Whereas:

(1) Pursuant to Article 3(4) of Directive 2009/28/EC, Member States are to ensure that the share of energy from renewable sources in the final consumption of energy in the transport sector reaches at least 10 % of the final consumption of energy in the transport sector by 2020. The Directive 2009/28/EC also stresses the need for Member States to ensure that a mandatory percentage target for energy efficiency is achieved. The importance of energy efficiency also for the transport sector is stressed in the Commission's Communication on the importance of energy efficiency also for the transport sector. The Commission is encouraged to include more detailed information on energy efficiency in its reports to be submitted in accordance with Article 17(1) of the Treaty on the Functioning of the European Union and of the Council (1) and other Union instruments.

(1) OJ C 198, 10.7.2013, p. 56.

(2) Position of the European Parliament of 11 September 2013 (not yet adopted) and decision of the Council of 13 July 2013, Official Journal L 308, 12.12.2013, p. 13.

(3) Directive 2009/28/EC of the European Parliament and of the Council of 19 May 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directive 2001/77/EC.

(4) Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency and amending Directive 2006/32/EC and Directive 2004/8/EC.

DIRECTIVE (EU) 2015/1513 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 9 September 2015

amending Directive 98/70/EC relating to the quality of petrol and diesel fuels and amending Directive 2009/28/EC on the promotion of the use of energy from renewable sources

(Text with EEA relevance)

ANNEX IX

Part A. Feedstocks and fuels, the contribution of which towards the target referred to in the first subparagraph of Article 3(4) shall be considered to be twice their energy content:

- (a) Algae if cultivated on land in ponds or photobioreactors.
- (b) Biomass fraction of mixed municipal waste, but not separated household waste subject to recycling targets under point (a) of Article 11(2) of Directive 2008/98/EC.
- (c) Bio-waste as defined in Article 3(4) of Directive 2008/98/EC from private households subject to separate collection as defined in Article 3(11) of that Directive.
- (d) Biomass fraction of industrial waste not fit for use in the food or feed chain, including material from retail and wholesale and the agro-food and fish and aquaculture industry, and excluding feedstocks listed in part B of this Annex.
- (e) Straw.
- (f) Animal manure and sewage sludge.
- (g) Palm oil mill effluent and empty palm fruit bunches.
- (h) Tall oil pitch.
- (i) Crude glycerine.
- (j) Bagasse.
- (k) Grape marcs and wine lees.
- (l) Nut shells.
- (m) Husks.
- (n) Cobs cleaned of kernels of corn.

Only feedstock list... No technology-related definition.

- (o) Biomass fraction of wastes and residues from forestry and forest-based industries, i.e. bark, branches, pre-commercial thinnings, leaves, needles, tree tops, saw dust, cutter shavings, black liquor, brown liquor, fibre sludge, lignin and tall oil.
- (p) Other non-food cellulosic material as defined in point (s) of the second paragraph of Article 2.
- (q) Other ligno-cellulosic material as defined in point (r) of the second paragraph of Article 2 except saw logs and veneer logs.
- (r) Renewable liquid and gaseous transport fuels of non-biological origin.
- (s) Carbon capture and utilisation for transport purposes, if the energy source is renewable in accordance with point (a) of the second paragraph of Article 2.
- (t) Bacteria, if the energy source is renewable in accordance with point (a) of the second paragraph of Article 2.

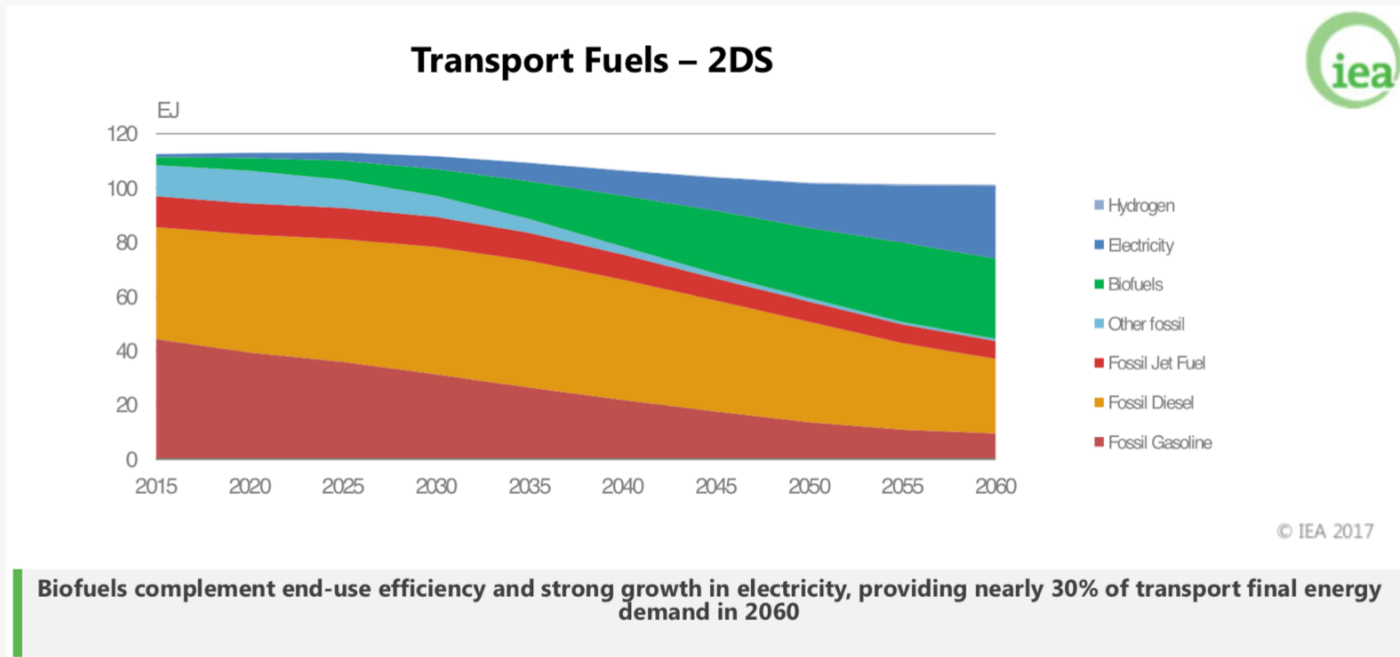
Part B. Feedstocks, the contribution of which towards the target referred to in the first subparagraph of Article 3(4) shall be considered to be twice their energy content:

- (a) Used cooking oil.
- (b) Animal fats classified as categories 1 and 2 in accordance with Regulation (EC) No 1069/2009 of the European Parliament and of the Council (*)

(*) Regulation (EC) No 1069/2009 of the European Parliament and of the Council of 21 October 2009 laying down health rules as regards animal by-products and derived products not intended for human consumption and repealing Regulation (EC) No 1774/2002 (Animal by-products Regulation) (OJ L 300, 14.11.2009, p. 1).

REDII EC proposal: food vs no-food biofuels

- **Food-based (conventional) Biofuels.** From **7%** at 2020 to **3.8%** at 2030
 - **No-food Biofuels.** From **1.5%** at 2020 to **6.8%** at 2030. They include, at 2030
 - *Biofuels from Organic Waste & Residues (Annex IX part B):* **1.7% cap**
 - *Advanced Biofuels (Annex IX Part A):* **3.6%**
 - *Renewable electricity, RFNBO:* **1.5%**
- More info on 2020-2030 trajectories in the following presentation by Mr Giulio Volpi, EC DG Energy.



ART Fuel - Key Messages & Statements (avail at artfuelsforum.eu)

 **ART Fuels** www.artfuelsforum.eu Financed by the  **European Commission**

KEY MESSAGES FROM Alternative Renewable Transport Fuel Forum Teams on REDII proposal

ART Fuel Forum (AFF) Consolidated Key Messages on REDII – INTERNATIONAL

 **ART Fuels** www.artfuelsforum.eu Financed by the  **European Commission**

KEY MESSAGES FROM Alternative Renewable Transport Fuel Forum Teams on REDII proposal

ART Fuel Forum (AFF)	Consolidated Key Messages on REDII – SECTOR SPECIFIC
AFF Scientific Coordinator	David Chiaramonti

SECTOR-SPECIFIC KEY MESSAGES
(listed not in order of importance but according to AFF team numbering)

All sectorial teams provided comments on RED II on a general basis, but some teams – as listed below – provided additional messages, specific to the main focus of these teams (also named sectorial working groups).

Pyrolysis

- 1. LARGE SCALE DEPLOYMENT** - For large scale production of pyrolysis oil and its applications in the transport sector, the whole ecosystem (technology, sustainability, finance, economics, legislation, logistics, organisation, etc.) should be properly addressed.
- 2. CO-PROCESSING** - Co-processing of pyrolysis oil in existing and new refineries (including co-hydrotreating) is possible. Interesting and competitive solutions are within reach and RDT and investment programs should be facilitated to investigate, further develop, demonstrate and roll-out integrated pyrolysis oil processing and upgrading.
- 3. STAND-ALONE PYROLYSIS OIL-BASED REFINERIES** - Beside the parallel development of co-refining limited amounts of pyrolysis oil in existing or new refineries, a program for stand-alone pyrolysis oil based refineries needs to be developed to overcome the initial investment barrier for oil majors. The non-profitable CAPEX being assessed at some hundreds of million Euro's.


Biochemical

4. ETHERS-RELATED MEASURES – REDII should encompass the deployment potential of the recently developed "100% bio-ethers" chain. REDII should be the proper occasion to revise the portion of the Annex III and Annex V of REDI relevant to Fuel-Ethers.

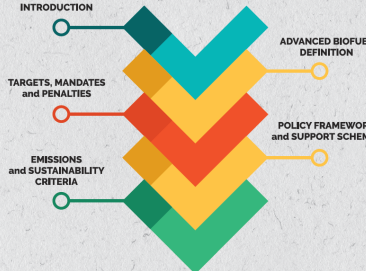
Liquid-based biofuels


5. ADVANCED BIOFUEL DEFINITION - The definition of Advanced Biofuels elaborated by SGAB and endorsed by AFF, as reported at General Section point 2, is welcome, in particular given the relevance of waste and residue material for the liquid-based biofuel sector.

6. CAP ON ANNEX IX-PART B TO BE REMOVED - The cap on Annex IX part B should be removed as it is a counter-productive proposal that can only restrict the use of development of the waste-based production facilities and act as an inhibitor to investment in new waste streams. The ILUC directive has promoted the use of Annex IX part B biofuels, which has led into industry investments. These biofuels should be included into advanced biofuel definition (as SGAB advanced biofuel definition does).


 **ART Fuels**

KEY MESSAGES ON RED II PROPOSAL



Project financed by the 





 **ART Fuels**


Joint Statement on REDII


November 27, 2017 - Leaders and experts in alternative fuels and transportation sectors who are part of the ART Fuels Forum urge the European Parliament and the EU Council of Ministers to set dedicated, ambitious and binding targets for the use of sustainable renewable transportation fuels and to ensure policy certainty in order to stimulate investments for increased production and use of such fuels.

Increased market penetration and widespread use of sustainable liquid and gaseous alternative fuels in all transport modes is required to achieve the ambitious goals that have been set to reduce CO₂ emissions in transport and to transition to a low carbon economy. Many new sustainable alternative transportation fuels, such as advanced biofuels, are ready to be commercialized at large scale and represent viable short-term solutions to replace fossil fuels in addition to sustainable conventional crop-based biofuels. Biofuels, renewable and low carbon alternative fuels also play an important economic role as they significantly increase job creation and help maintaining the global leading position of the European industry. The increased adoption of renewables in transportation heavily influenced by the decisions of policy makers which are in turn creating the business environment necessary to stimulate investments.

Based on the recent opinion issued by the European Parliament Environment Committee and the latest text proposed by the EU Council Presidency on the proposed REDII, the ART Fuels Forum calls for:

 **ART Fuels** www.artfuelsforum.eu Financed by the  **European Commission**



 **ART Fuels**

POSITION PAPER

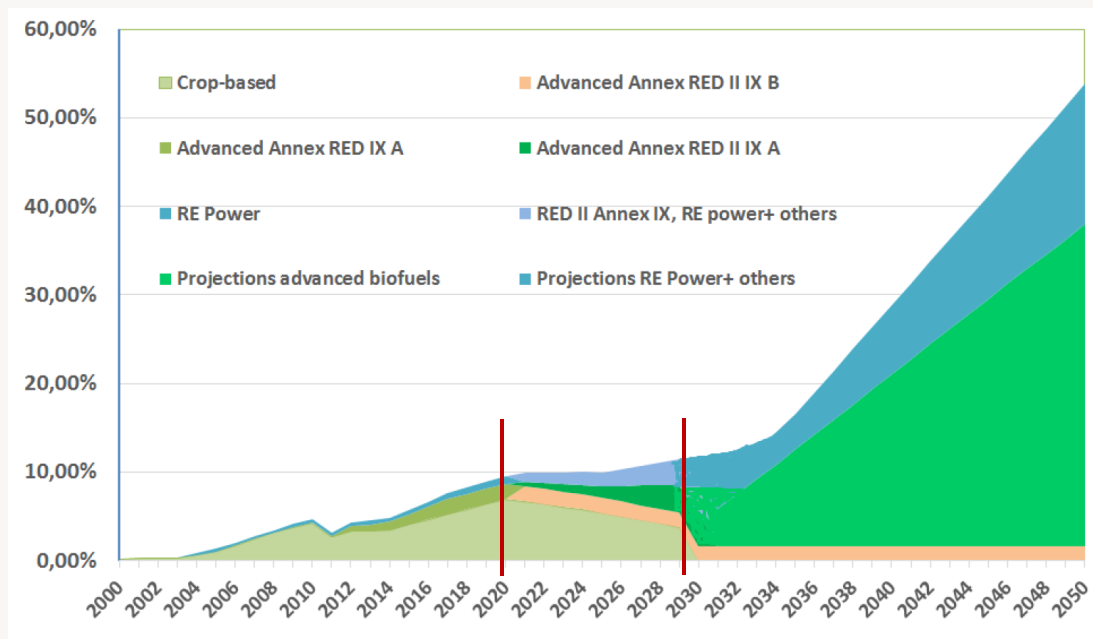
IMPLICATIONS OF THE RED II PROPOSAL FOR DEPLOYMENT OF POWER-TO-X TECHNOLOGIES ("e-Fuels")

INTRODUCTION

The Commission's proposal in the recast of the Renewable Energy Directive to integrate more renewable energy in the transport sector via the use of, inter-alia, Renewable Fuels of Non-Biological Origin pathways is welcomed.

However, limiting the possibility for producing these fuels to either [1] a direct connection or [2] measuring it via the EU's renewable grid average is not enabling the potential that these fuels have in decarbonising the transport sector whilst increasing the share of renewable energy in the economy.

- *Definition of Advanced Biofuels should be broader than Annex IX lists and should include all sustainable waste & residue material based biofuels [...] The Industry believes that a definition of advanced sustainable fuels should be developed and **used with targets**. We reiterate the SGAB definition of advanced biofuels as the most appropriate one for the recast of the RED:*
- ***“AB are those produced from biomass other than food/feed crops while meeting the EU sustainability regime under the legislation in force”.***
- *The definition of ‘non-food cellulosic material’ as in Art.2 q is too narrow and doesn't represent reality on the ground. A more accurate one, reflecting the reality on sourcing sustainable biomass by the investors, is needed which is being drafted by the AFF and will be communicated soon.*
- *Furthermore the SGAB definitions for **Advanced Renewable Fuels, e-fuels and Low Carbon Fossil Fuels** should be adopted by the legislator to provide clarity and remove ambiguity in the legislation.*



RED II modest proposal to 2030: enormous effort needed post-2030 if EU Policy targets are to be met

Source: SGAB, 2017

ART Fuel Key Messages - General - Mandates/Sub-Mandates

Contribution of Food/feed crop-land based Fuels to the 2030 target in % of total EU energy for transport			
Base scenario		Progressive scenario	
Food/feed crop-land based	6.0 ³	Food/feed crop-land based	6.0 ³

Contribution of Advanced Renewable Fuels to the 2030 target in % of total EU energy for transport			
Base scenario		Progressive scenario	
Advanced Biofuels:		Advanced Biofuels:	
-Lignocellulosic & other biofuels	3.0	-Lignocellulosic and other biofuels	4.5
-Lipid-based biofuels	3.0	-Lipid-based biofuels	4.5
<u>e-fuels</u>	0.5	<u>e-fuels</u>	0.7
Total	6.5	Total	9.7

Contribution of CCU / Low Carbon Fossil Fuels to the 2030 target in % of total EU energy for transport			
Base scenario		Progressive scenario	
Low Carbon Fossil Fuels (CCU)	0.7	Low Carbon Fossil Fuels (CCU)	1.0

Contribution of all Fuels to the 2030 target in % of total EU energy for transport			
Base scenario		Progressive scenario	
Total	13.2	Total	16.7

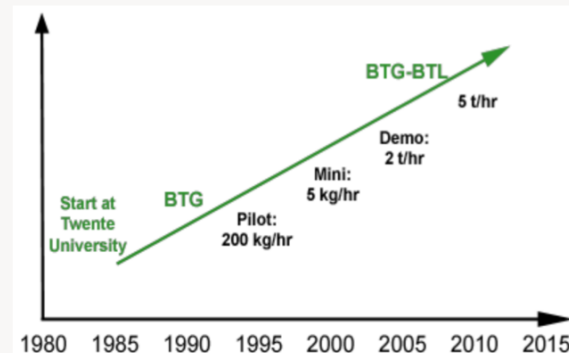
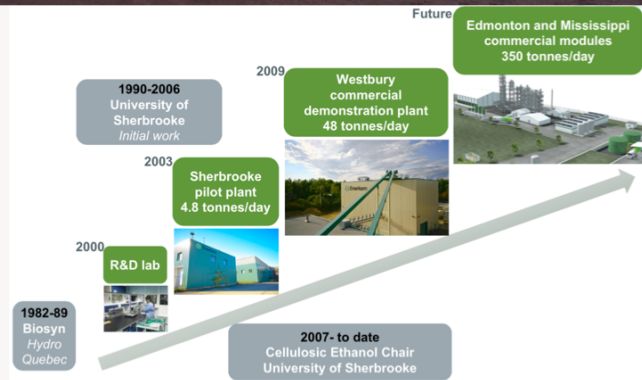
Source: SGAB, 2017

17

The Progressive scenario is in agreement with 2050 EU targets on transport decarbonisation.

- **LONG-TERM STABLE POLICY FRAMEWORK**
- **PENALTIES FOR NON-COMPLIANCE**
- **POST 2030 PROVISIONS**
- **SUSTAINABILITY CRITERIA**
- **1G TO AB TRANSITION**
- **FINANCING**
- **SPECIFIC INCENTIVES FOR AVIATION**
- **MULTIPLIER FACTORS**
- **PROTECTION OF INVESTMENTS**
- **GHG EMISSION FROM WASTE TO BE REASSESSED**
- **SPECIAL ATTENTION TO NEW TECHNOLOGIES**
- **BIOMASS CO-PROCESSING IN PETROLEUM REFINERIES**

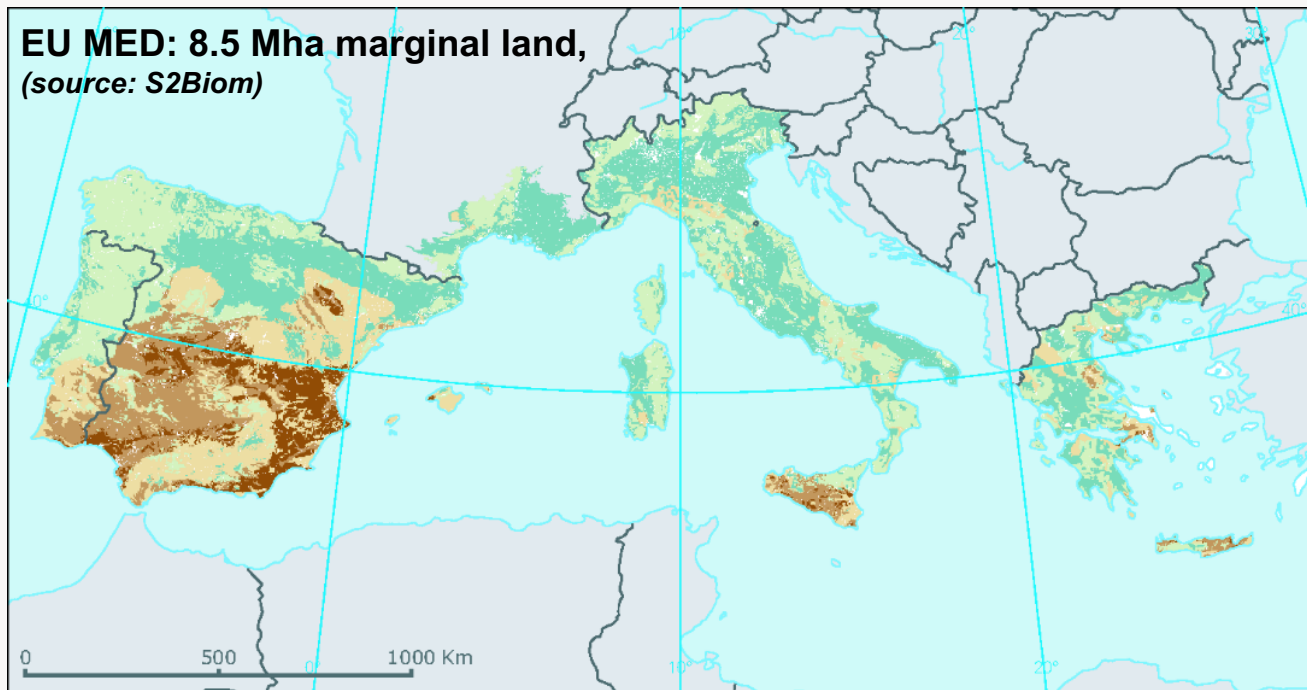
From R&D to Demo to Industrial - *no shortcuts to market*










- **LONG-TERM STABLE POLICY FRAMEWORK**
- **PENALTIES FOR NON-COMPLIANCE**
- **POST 2030 PROVISIONS**
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- **BIOMASS CO-PROCESSING IN PETROLEUM REFINERIES**

- **TAILOR-MADE SOLUTIONS NEEDED** - AFF welcomes a tailor-made solution for aviation and wants to emphasize that there can be different ways to structure such support mechanisms and that the multiplier might not be the most effective option [...] a 1.2 factor will not be sufficient [...]. On the other hand, if EC is open to discuss other mechanisms [...] strong preference to work on an auctioning system [...]
- **AVIATION IS A GLOBAL INDUSTRY: MEASURES NEED ALIGNMENT** - Any measures taken in a European context will have an (economic) impact on EU carriers in this global competitive playing field. Ensuring alignment at international level is key (e.g. ICAO).
- **SUPPORT TOWARDS UPSCALING** - First upscaling of the sustainable aviation fuel industry will be relying heavily on non Annex-IX feedstock [...] conversion technologies that can use Annex-IX feedstock are not ready for commercial scale up (i.e. not ASTM certified and low TRL [...])
- **INDECISIVENESS WILL PUT THE EU EVEN FURTHER BEHIND** – [...] Serious policy/market efforts are emerging in US, China, Canada, Norway, UK, Brazil Australia, Japan etc.

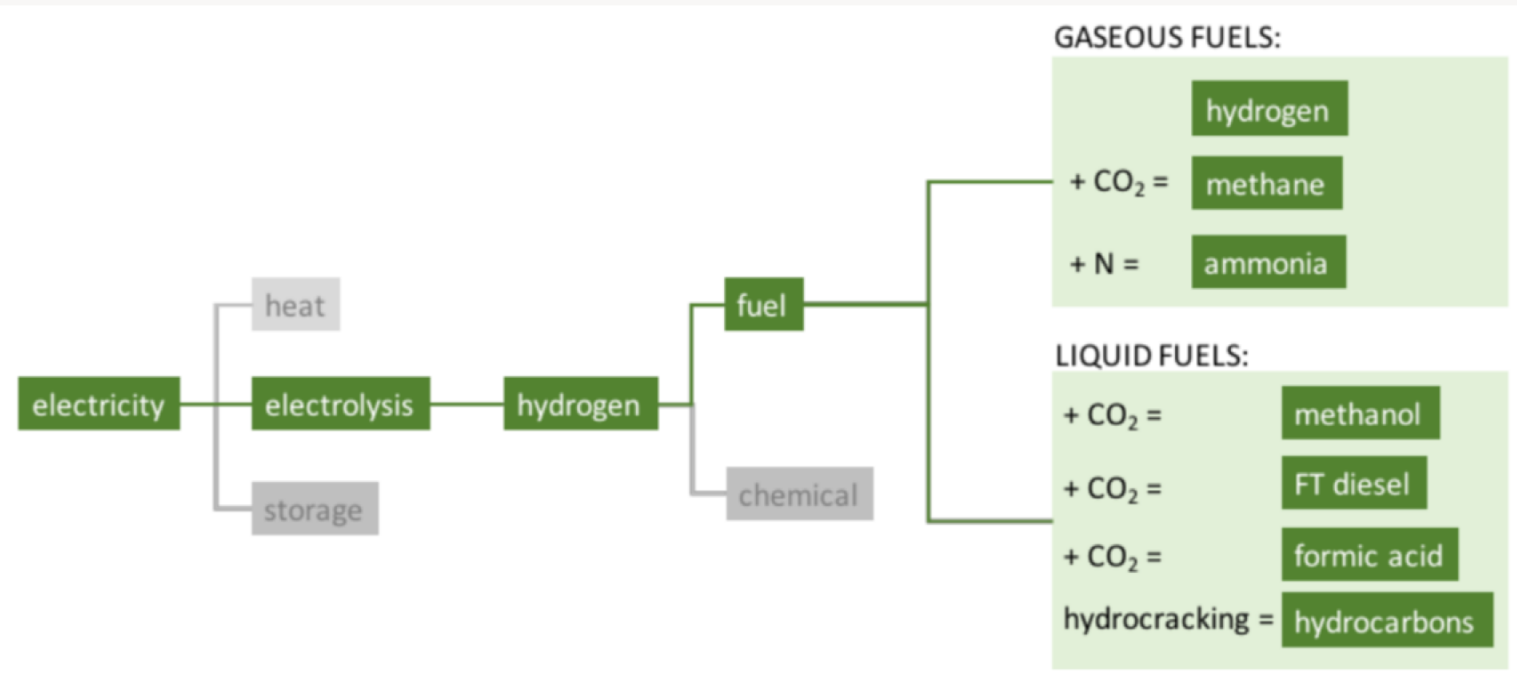
EU MED: 8.5 Mha marginal land,
(source: S2Biom)



**Sensitivity to
desertification
index (SDI) in the
northern
Mediterranean**

-  Area not affected
($0 \leq \text{SDI} < 1.15$)
-  Very low
($1.15 \leq \text{SDI} < 1.20$)
-  Low
($1.20 \leq \text{SDI} < 1.25$)
-  Low to moderate
($1.25 \leq \text{SDI} < 1.30$)
-  Moderate
($1.30 \leq \text{SDI} < 1.40$)
-  High to very high
($\text{SDI} \geq 1.40$)
-  Urban areas,
water bodies or
no data

- **1** - transport specific renewable energy target for Member States or a fuel supplier obligation.
- **2** - Maintaining the list of feedstocks from Annex IX as it is, as proposed by the Commission, whilst allowing to add feedstock to the list in the future but not removing any.
- **3** - Establishing binding specific targets (dedicated sub-mandates) for the different categories of biofuels and other sustainable transportation alternatives
- **4** - Incentivizing the use of alternative fuels in aviation and marine sectors with concrete policy measures.
- **5** - Focusing efforts on limiting the use of fossil fuels in transport rather than limiting sustainable crop based biofuels. A 7% cap on sustainable crop-based biofuels should not be reduced until 2030.



- **Power-To-X estimated potential** - **0.5-0.7%** total EU energy demand for transport (Source: SGAB), i.e. **10%** of REDII target.

- **Barriers 1** - Only if the installation is **directly connected** to a renewable electricity installation is it possible to qualify the entire output as renewable, but in this case the installation may not be connected to the electricity grid. **Unnecessarily restrictive condition:** GO (current or revised/improved, to avoid risks of kWh double counting) should be retained sufficient.
- **Barriers 2** - In ENVI compromise amendment 2A the definition of RFNBO is amended by adding an additional requirement “where any **carbon feedstock is captured from the ambient air**”. In Europe alone, there are 9.000 point sources of CO₂ at high concentrations, emitting more than 1.5 billion tons of CO₂ per annum. This amount of CO₂ equals more than 500 million tons of oil equivalent in terms of Power-to-X fuels.

Source	Type CO ₂	Output (ton/hour)	Concentration
Industrial flue gases (e.g. steel mill, refinery)	Fossil	700	10%-15%
Ethanol fermentation (e.g. brewery, fuel production)	Biogenic	50	95%
Biogas upgrading	Biogenic	0,7	90%

- **Barriers 3** – Subtargets introduced by REDII proposal in Article 25.1, different sub-quotas listed in Annex X.
 - *Annex X – Part A sets a maximum contribution of **3,8% from liquid biofuels made from food or feed crops in 2030***
 - *Annex X – Part B sets a minimum share of energy from all **feedstocks listed in Annex IX, renewable transport fuels of non-biological origin, waste-based fossil fuels and renewable electricity at 6,8% in 2030***
 - *Annex X – Part C sets a minimum share of **advanced biofuels** from feedstocks listed in Annex IX Table A at **3,6% in 2030***
- Surprisingly RFNBO has been removed from Annex IX Part A for no apparent reason.

04

Conclusions

- **European Council:** General Approach, 17/12/2017
- **EP Parliament** on RED: Amendments voted on 17/1/2018
 - Details in the following presentation by Mr Giulio Volpi, EC DG Energy
- The discussion on REDII is now moving to Tripartite confrontation among
 - ✓ *European Commission*
 - ✓ *European Parliament*
 - ✓ *European Council*
- Still various critical matters on the ground
- The conclusion of the confrontation could be expected by the end of 2018: however, it will depend on reaching agreements on key elements

ENERGY & ENVIRONMENT
CONSULTANTS
Omirou Str. & Vissarionos 1
10672 Athens (GR)
Tel: +30 210 6996185,
e-mail: office@exergia.gr

Ren.Energy Consortium for R&D
c/o Dept. of Industrial Engineering
Univ. of Florence, Viale Morgagni 40
50134 Florence (IT)
Tel: +39 055 2758690
e-mail: info@re-cord.org



David Chiaramonti

david.chiaramonti@re-cord.org - david.chiaramonti@unifi.it - <http://www.re-cord.org>

www.artfuelsforum.eu
artfuels@exergia.gr