



# Support of bioenergy and advanced biofuel technologies in the Horizon 2020 Work Programme "Secure, Clean and Efficient Energy"

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# Outline

- EU Energy Policy framework
- EU-Energy Research Policy framework
- Opportunities and Challenges for Bioenergy and Advanced Biofuels from R&D perspective

## Vice-President for Energy Union Maroš Šefčovič at the Energy Union Conference, Riga 06/02/2015

*"...We now have a unique opportunity to look beyond energy and climate policy and **link it up with other areas** such as **industrial policy, transport, competition, agriculture, foreign, trade and development policy, or research**. This is the only way to transcend the so-called contradiction between '**competitiveness**' and '**decarbonisation**'. There is no such contradiction, we need both at the same time"*

# EU Energy policy priorities

- Energy security strategy
- GHG reduction and Energy efficiency goals
- Renewable energy targets
- Infrastructure renewal and interconnection
- Smart/intelligent networks
- New players with new roles/services/technology
- Focus on needs of users

## 2030 climate and energy Framework

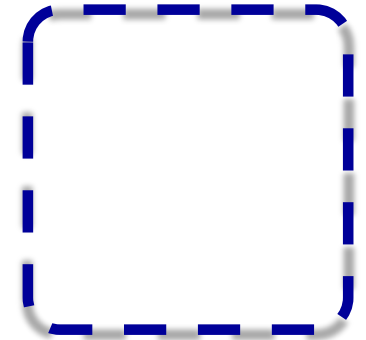
2020

20 %  
GHG

20%  
RES

10 % RES  
in  
transport

20 %  
EE



2030

40 %  
GHG

27 %  
RES

No target  
in  
transport



27 %  
EE

New Key  
Indicators

New governance system

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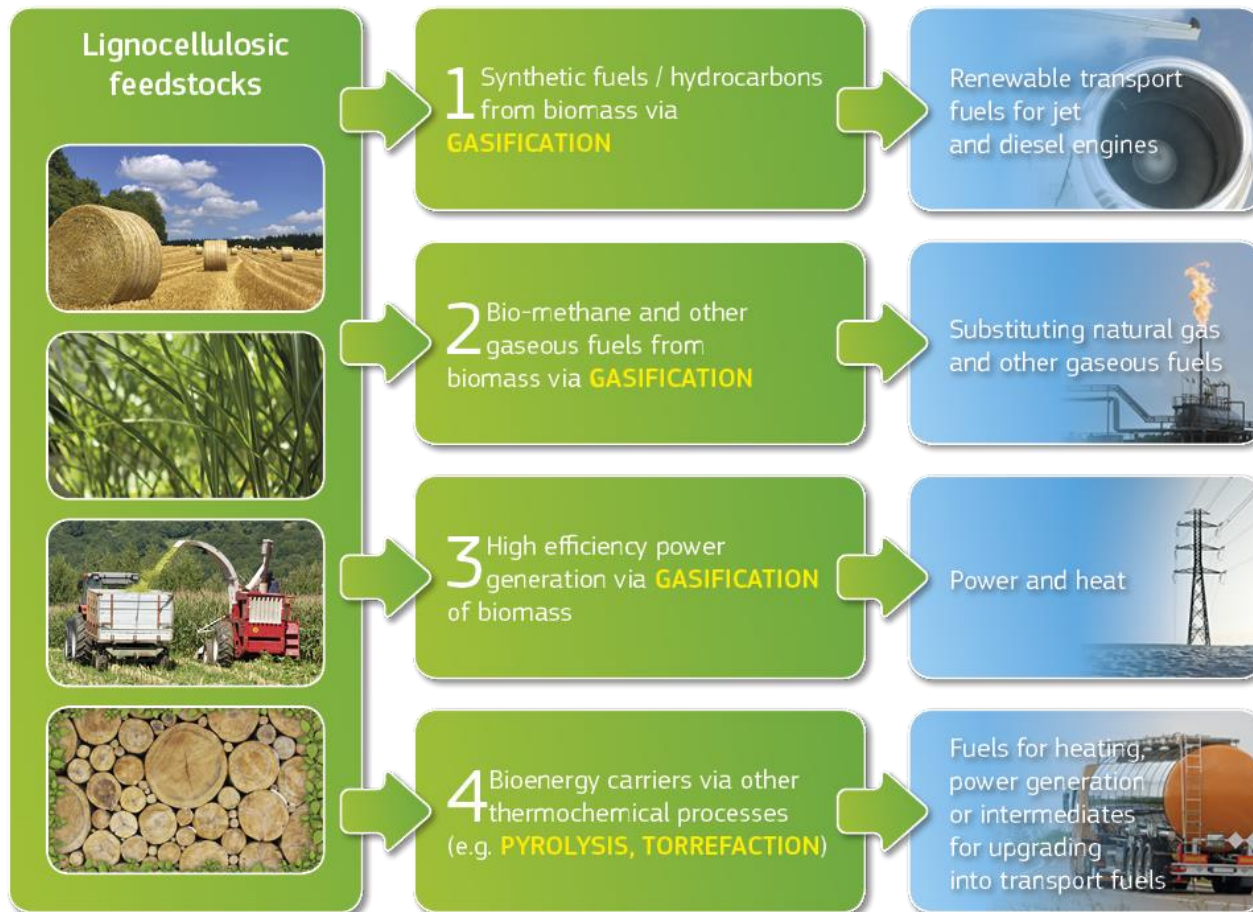
# The SET-Plan: coordinating research and innovation across Europe

The Strategic Energy Technology (SET) Plan is the technology pillar of the EU's energy and climate change policy

- **European Industrial Bioenergy Initiative (EIBI):**  
Update to the Implementation Plan for 2013-2015 (2013)
  - + *European Biofuels Technology Platform (EBTP)*
  - + *European Technology Platform on Renewable Heating and Cooling – Biomass Technology Panel (RHC-TP)*
- ***Towards an Integrated Roadmap***  
*puts forward key research and innovation actions*
- ***Towards an Integrated Strategic Energy Technology (SET) Plan: Accelerating the European System Transformation C(2015)6317***

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# Advanced Biofuels: Road to Market

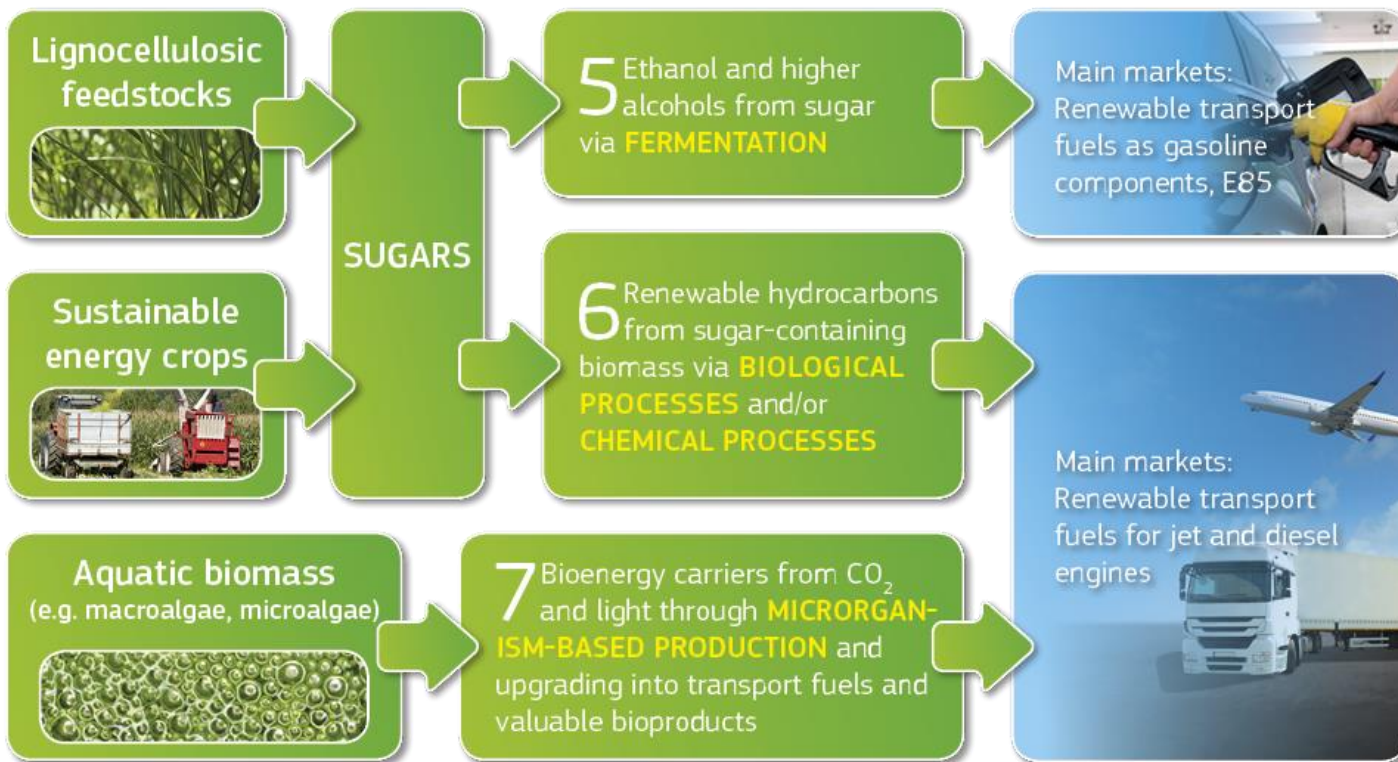


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[setis.ec.europa.eu](http://setis.ec.europa.eu)

# Advanced Biofuels: Road to Market



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# Bioenergy in Horizon 2020 WP 2014/2015

## **Bioenergy**

*LCE 1:* New knowledge and technologies (TRL 2 – TRL 3-4)

*LCE 14:* Market uptake of existing and emerging sustainable bioenergy (TRL 7-9)

## **Advanced Biofuels:**

*LCE 11:* Developing next generation technologies for biofuels and sustainable alternative fuels (TRL3-4 –TRL 4-5)

*LCE 12:* Demonstrating advanced biofuel technologies (TRL 5-6 – TRL 6-7)

## **CHP:**

*LCE 2:* Developing the next generation technologies of renewable electricity and heating/cooling (TRL3-4 –TRL 4-5)



# **Info Day on the Horizon 2020 Work programme 2016-2017 'Secure, Clean and Efficient Energy'**

14. and 15. September 2015

Draft WP was presented, not yet legally endorsed

More information available at:

<http://ec.europa.eu/research/index.cfm?pg=events&eventcode=0B56FA95-AFE0-D63B-DD0527FE301EC26C>

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# Bioenergy in Horizon 2020

## DRAFT - WP 2016/2017

### **General topics:**

*LCE 06:* New knowledge and technologies (– TRL 4)

*LCE 07:* Developing the next generation technologies of renewable electricity and heating/cooling (– TRL 4-5)

*LCE 21:* Market uptake of renewable energy technologies

### **Advanced Biofuels:**

*LCE 08:* Developing of next generation biofuel technologies (TRL3-4 –TRL 4-5)

*LCE 19:* Demonstration of the most promising advanced biofuel pathways (TRL 5-6 – TRL 6-7)

*LCE 20:* Enabling pre-commercial production of advanced aviation biofuel(TRL 5-6 – TRL 6-7)

*LCE 22:* International Cooperation with Brazil on advanced lignocellulosic biofuels

# Advanced Biofuels – Strategy

*Overall strategy is to target the following sector challenges:*

- Technology and cost competitiveness
  - ✓ Technology improvement and diversification
- Feedstock availability
  - ✓ Feedstock diversification
- Commercialization
  - ✓ Focus on particular transport sectorial needs
  - ✓ Aligned market up-take measures

# Advanced Biofuels - Expected impacts

- Advance technologies for production of sustainable biofuels with reduced costs and favorable GHG balance
- Enlargement of feedstock basis
- Positive social and economic impact by targeting Europe's competitiveness and energy security
- Successful upscaling of technology for future commercialization



# *LCE06 New Knowledge and Technologies: Sustainable Fuels*

## *Specific Sub-Challenges :*

Novel fuel conversion routes and novel fuels

Expected impact:

Improve the conversion efficiency for significant cost reduction

## *LCE08: Development of next generation biofuels technologies*

- Improving technology competitiveness and enlarging feedstock portfolio of future biofuels
- Main focus in 2016 on conversion technology and in 2017 on feedstock diversification
- Biofuels with improved cost-competitiveness and sustainability are expected

## *LCE19: Demonstration of the most promising advanced biofuel pathways*

- Diversification of technology portfolio and feedstock basis
- Main focus in 2016 on improving production technology and in 2017 on feedstock diversification
- Meeting performance and cost targets should allow for subsequent first-of-a-kind plants



## *LCE20: Enabling pre-commercial production of advanced aviation biofuel*

- Demonstration of advanced biofuel technologies for production of biojet at pre-commercial scale
- Production target of aviation fuel in the range of several tens of thousands tons/a
- By responding to the EU FlightPath objectives the produced fuel is expected to be fully used in commercial flights

## *LCE22: International Cooperation with Brazil on advanced lignocellulosic biofuels*

- Exploitation of synergies between Brazil and Europe in advanced biofuel technologies
- Different sub-challenges of the advanced biofuel value chain are targeted
- Coordinated research activities of the two selected partner projects are expected



## *LCE21 Market uptake: Sustainable Fuels*

### *Specific Sub-Challenges*

- Commercialization of liquid advanced biofuels and liquid renewable alternative fuels
- Addressing the whole set of actors in the value chain through multidisciplinary approaches

E.g:

- Whole value chain/ Supply chain
- Identification of the public concerns
- Standard and certification needs
- Capacity building

# Strategy for research in the area of **CHP** (targeted in LCE 07)

- To increase the technology performance, feedstock basis and resource efficiency with the aim to improve cost effectiveness and reduce emissions
- To develop energy intermediates as storable renewable energy source in integrated systems

## *Presentation of sub-challenges for CHP*

- in 2016: Development of medium- and large-scale biomass-based CHP systems with high thermal and electrical efficiency and increased high-temperature heat potential
- in 2017: Transforming renewable energy into intermediates from biomass and other renewable and waste carbon sources



# **Jean-Claude Juncker, President of the European Commission**

***From the political guidelines:***

***" I want the European Union to become the world number one in renewables."***

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# HORIZON 2020

**Thank you for your attention!**

Find out more:

<http://ec.europa.eu/programmes/horizon2020>