Towards an Integrated SET-Plan –
The role of bioenergy/biofuels in
accelerating the European energy
system transformation

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Outline

• Energy Policy
• Energy transformation & SET Plan
• Bioenergy & Advanced Biofuels
• EC support
Energy Policy

- EU commitment to a clean energy transition
- 'Resilient Energy Union with a forward-looking climate change policy' one of the 10 top priorities of the Junker Commission
- Research, Innovation and Competitiveness one of the five pillars of the Energy Union vision
ENERGY UNION – VISION

• True **solidarity and trust**; speaking with **one voice** in global affairs
• An **integrated** continent-wide energy system
• Sustainable, low-carbon and climate-friendly **economy**
• Strong, innovative and **competitive** European economy
• **Citizens** taking ownership of the energy transition
Towards a European Energy Union

Five Pillars

• Energy security, solidarity and trust
• A fully integrated European energy market
• Energy efficiency supporting moderation of demand
• Decarbonising the economy
• Research, Innovation and Competitiveness
2030 Climate and Energy Framework

2020:
- 20% GHG
- 20% RES
- 20% EE
- 10% RES in transport

2030:
- 40% GHG
- 27% RES
- 27% EE
- No target in transport

New governance system

New Key Indicators
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 policy.

The SET Plan Actors
- European Commission
- Member States (EU28+CH,IS,NO,TR)
- Stakeholder Platforms
New Governance

- Results oriented
- Involving a wide range of stakeholders
- Ensuring transparency, accountability, monitoring of progress and knowledge sharing (via SETIS)
- Stakeholder Platforms to provide strategic input and recommendations to the Set Plan Steering group and mobilize implementation
  - European Technology and Innovation Platforms (ETIPs): structures gathering all relevant stakeholders
  - The European Energy Research Alliance (EERA)
  - Other EU Stakeholder platforms relevant in the energy sector
1. **Number one in RES:** technology leadership by developing high performant, integrated and cost efficient renewable technologies

2. **Consumer at the center of the future energy system:** smart homes and cities, resilient, secure and smart energy system

3. **Efficient energy systems:** new materials and technologies, less energy intensive EU industry

4. **Sustainable transport:** leadership in batteries, renewable fuels for sustainable transport

5. **A forward looking approach to CCS and CCU**

6. **Nuclear energy safety**
European Technology and Innovation Platforms (ETIPs)

- Continuation of existing ETPs and EIIs in unified Platforms per technology
- Recognized interlocutors about specific R&I needs
- Cover the whole innovation chain, industrial stakeholders (incl. SMEs), research organizations and academic stakeholders, representatives of business, civil society and NGOs, representatives of MS

Freedom to organize as see fit
Bioenergy and Advanced Biofuels
Bioenergy in the future energy mix
(EUBCE 2016)

- Biomass crucial to achieve the 2°C target of climate change following the COP 21 agreement
- Already used 730 Gt out of 1000 Gt CO$_2$ budget for the 2°C
- Bioenergy can provide 10%-30% of all total CO$_2$ emission reductions needed
- A number of large scale demonstration plants are a reality, showing that biomass can be effectively converted into energy and advanced biofuels
A Roadmap for moving to a competitive low carbon economy in 2050

Road Transport Energy Mix [Mtoe]
Decarbonisation scenario under effective technologies and global climate action

- Oil: 100%
- Biofuels: 39%
- Electricity: 25%
- Other: 36%

COM(2011) 112 final
Opportunities for Bioenergy and Advanced Biofuels

- Growing market for advanced biofuels
- Goal of reaching competitiveness to conventional biofuels by lowering production costs of advanced biofuels and addressing feedstock constraints
- Advanced biofuels and intermediates can play an essential role for both energy storage and use (grid balancing, use in electricity, heat and transportation)
- European leadership in advanced biofuels technologies
Bioenergy in Horizon 2020

**WP 2014/2016**

- EU contribution to bioenergy and advanced biofuels under the Energy calls (incl. SME instrument) reached €100 Mio
- Full R&I value chain covered from TRL 2 to 7 and market uptake actions

**WP 2016/2017**

- Evaluations on-going
- €80 Mio earmarked for advanced biofuels covering from TRL 3 to 7 and ~€100 Mio for bioenergy including biofuels for TRL 2 to 3 and market uptake measures
- Loans for investments for innovation actions (FoK), notably through the EDP facility
Bioenergy in Horizon 2020
Draft WP 2018/2020

• Low TRL (2-3): Bottom-up approach to long-term research and technology development

• Medium TRL research (4-6): Advance and demonstrate the technology, reduce its costs, improve its performance and prove its reliability

• High TRL (7-8): technology-specific demonstration activities and support mechanisms for first-of-a-kind plants with a higher leverage than 'standard grants' (e.g. through the EDP facility)

• Market up-take measures
EC support to Bioenergy

Other societal challenges → Bioenergy Implementation Plan → Financing → ERA-NET Plus and Cofund → NER 300/NER 400 → Innovative Financing EFSI → Excellent Science, Industrial Leadership
InnovFin for first-of-a-kind projects

- Access to risk finance for R&I projects
- Promotes first-of-a-kind, commercial-scale industrial demonstration projects
- Loans and guarantees from EUR 25m to 300m
- Information: [www.eib.org](http://www.eib.org)
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