



# **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 Juncker Commission
- Research, Innovation and Competitiveness one of the five pillars of the Energy Union vision

## ENERGY UNION – VISION

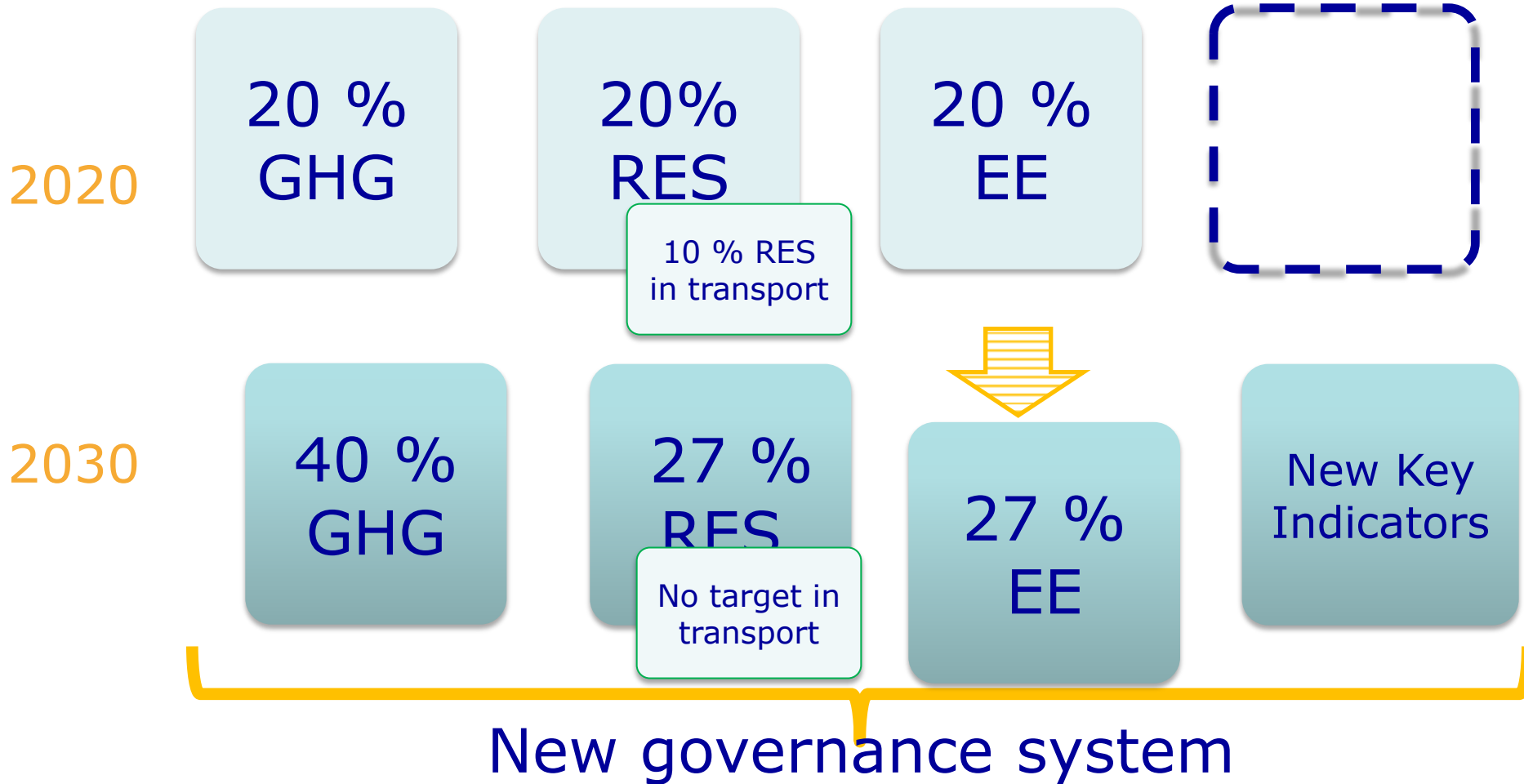
- True **solidarity and trust**; speaking with **one voice** in global affairs
- An **integrated** continent-wide energy system
- Sustainable, low-carbon and climate-friendly **economy**
- Strong, innovative and **competitive** European economy
- **Citizens** taking ownership of the energy transition

# 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



# 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



- 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



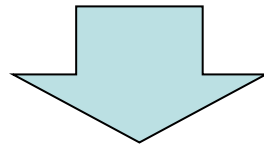


1. Number one in RES: technology leadership by developing high performant, integrated and cost efficient renewable technologies
2. Consumer at the center of the future energy system: smart homes and cities, resilient, secure and smart energy system
3. Efficient energy systems: new materials and technologies, 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**

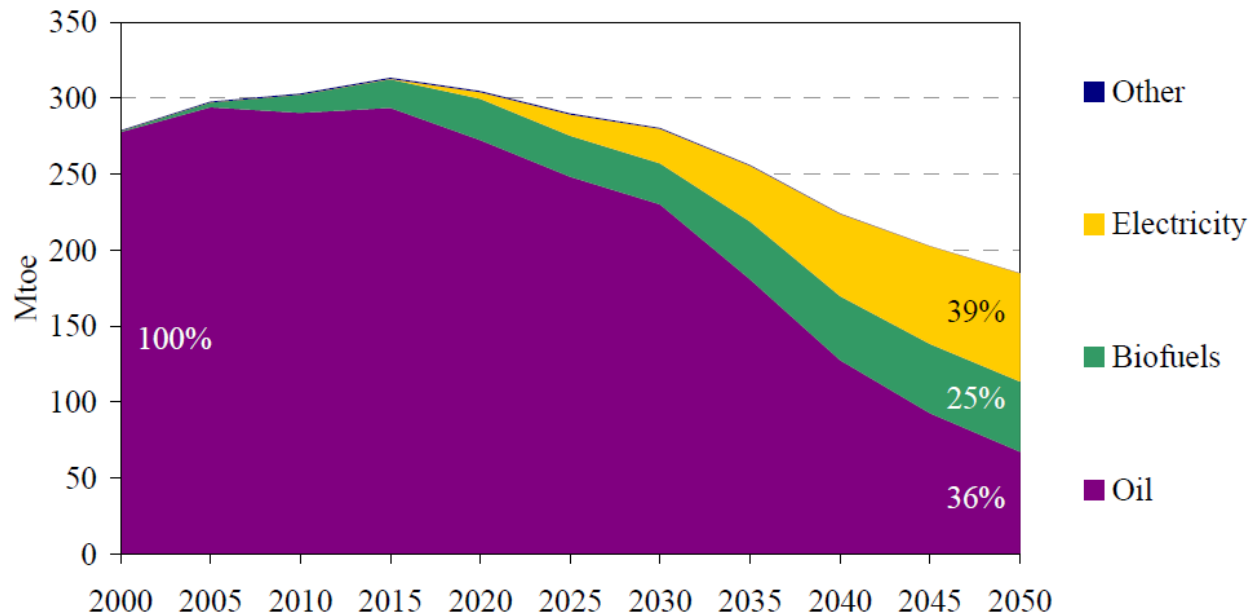
# Bioenergy in the future energy mix

## (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<sub>2</sub> budget for the 2°C
- Bioenergy can provide 10%-30% of all total CO<sub>2</sub> 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



# 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

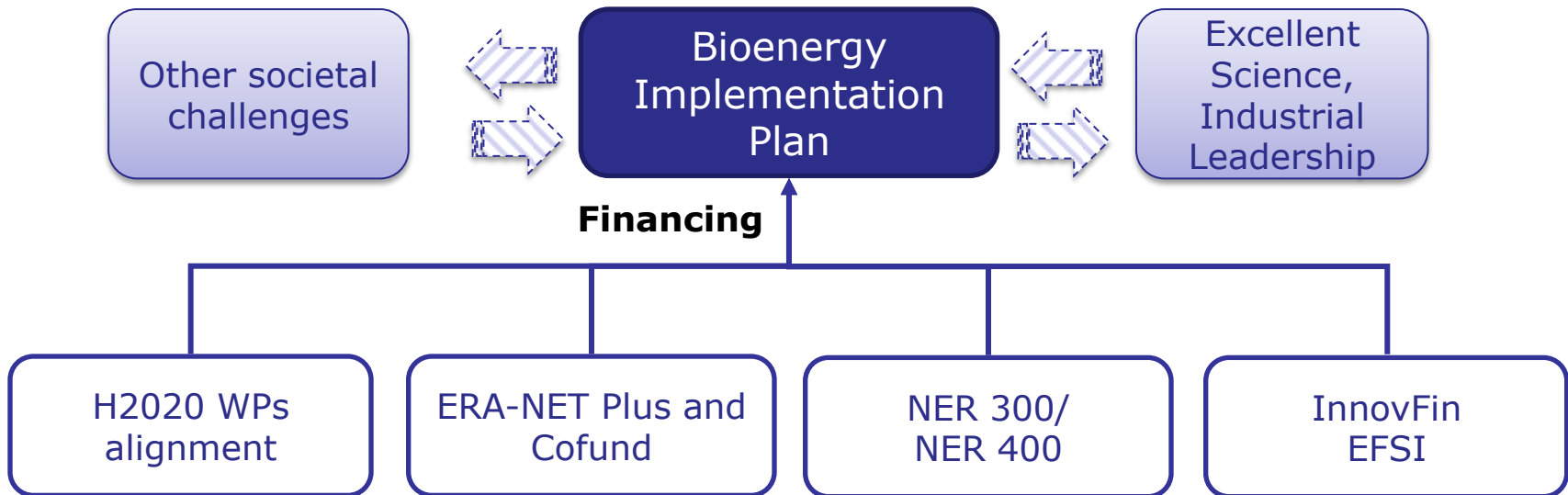
# Bioenergy in Horizon 2020

## 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





## 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)

**InnovFin**  
Large Projects





# HORIZON 2020

**Thank you  
for your attention!**

**Find out more:**

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