



# HORIZON 2020

**Sustainable Energy Support in  
the EU  
Framework Programme for  
Research and Innovation**



Irene Bonvissuto

# What is Horizon 2020

- **The EU Research and Innovation funding programme for the period 2014-2020**
- **Almost €80 billion EUR funding**
- **A core part of Europe 2020, Innovation Union & European Research Area:**
  - Responding to the economic crisis to invest in future jobs and growth
  - Addressing people's concerns about their livelihoods, safety and environment
  - Strengthening the EU's global position in research, innovation and technology

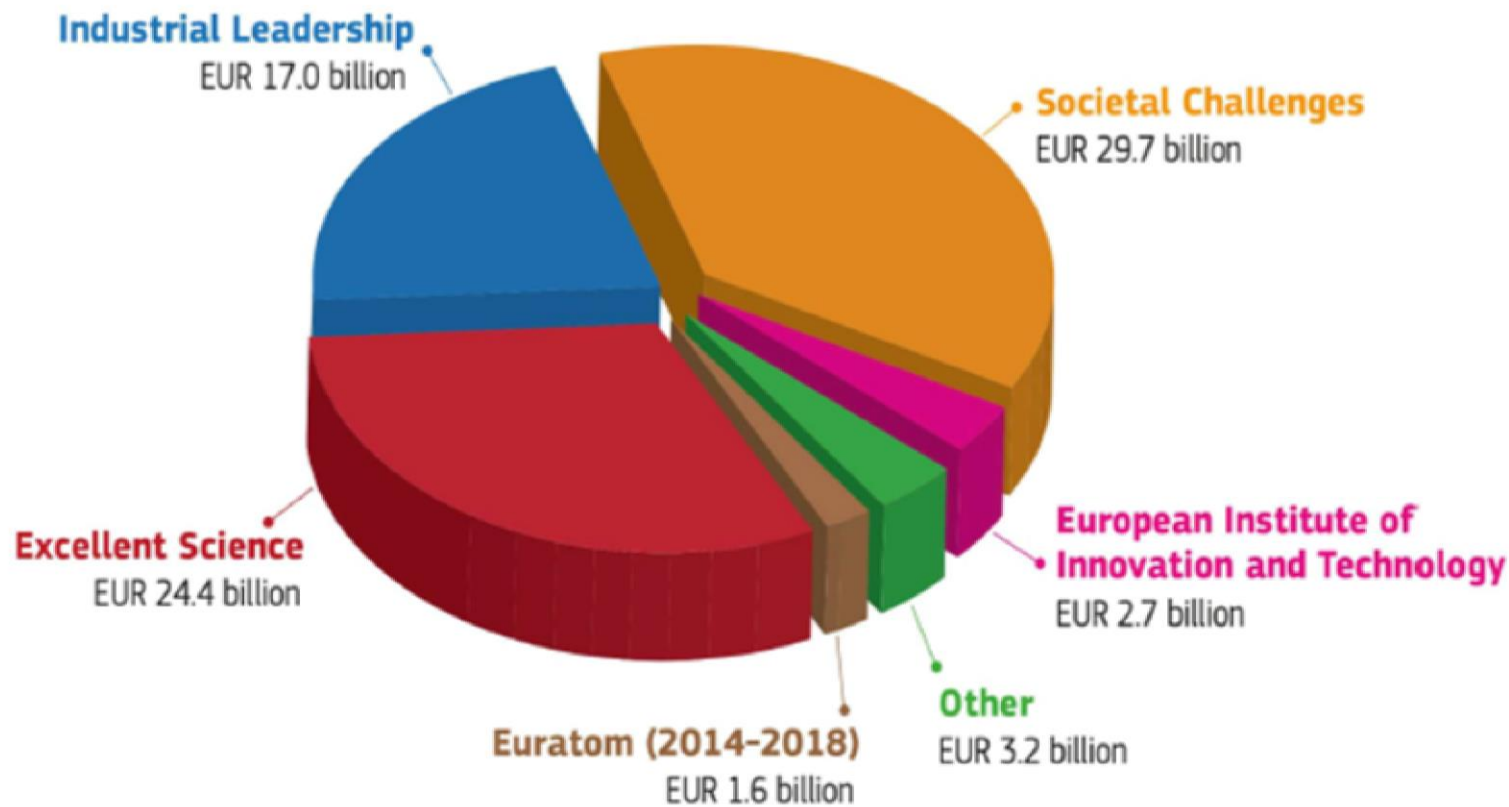
# What's new

- **A single programme** bringing together previous separate programmes/initiatives
- **Coupling research to innovation** – from research to retail, all forms of innovation
- **Focus on societal challenges** facing EU society, e.g. health, clean energy and transport
- **Simplified access,** for all companies, universities, institutes in all EU countries and beyond

# Three priorities



## HORIZON 2020 BUDGET (in current prices)



# **Priority 1. Excellent science**

## **Why:**

- **World class science is the foundation of tomorrow's technologies, jobs and wellbeing**
- **Europe needs to develop, attract and retain research talent**
- **Researchers need access to the best infrastructures**

## Funding (€ million, 2014-2020)

<b><i>European Research Council (ERC)</i></b> Frontier research by the best individual teams	<b>13 095</b>
<b><i>Future and Emerging Technologies</i></b> Collaborative research to open new fields of innovation	<b>2 696</b>
<b><i>Marie Skłodowska-Curie actions (MSCA)</i></b> Opportunities for training and career development	<b>6 162</b>
<b><i>Research infrastructures (including e-infrastructure)</i></b> Ensuring access to world-class facilities	<b>2 488</b>

## **Priority 2. Industrial leadership**

### **Why:**

- **Strategic investments in key technologies (e.g. advanced manufacturing, micro-electronics) underpin innovation across existing and emerging sectors**
- **Europe needs to attract more private investment in research and innovation**
- **Europe needs more innovative small and medium-sized enterprises (SMEs) to create growth and jobs**



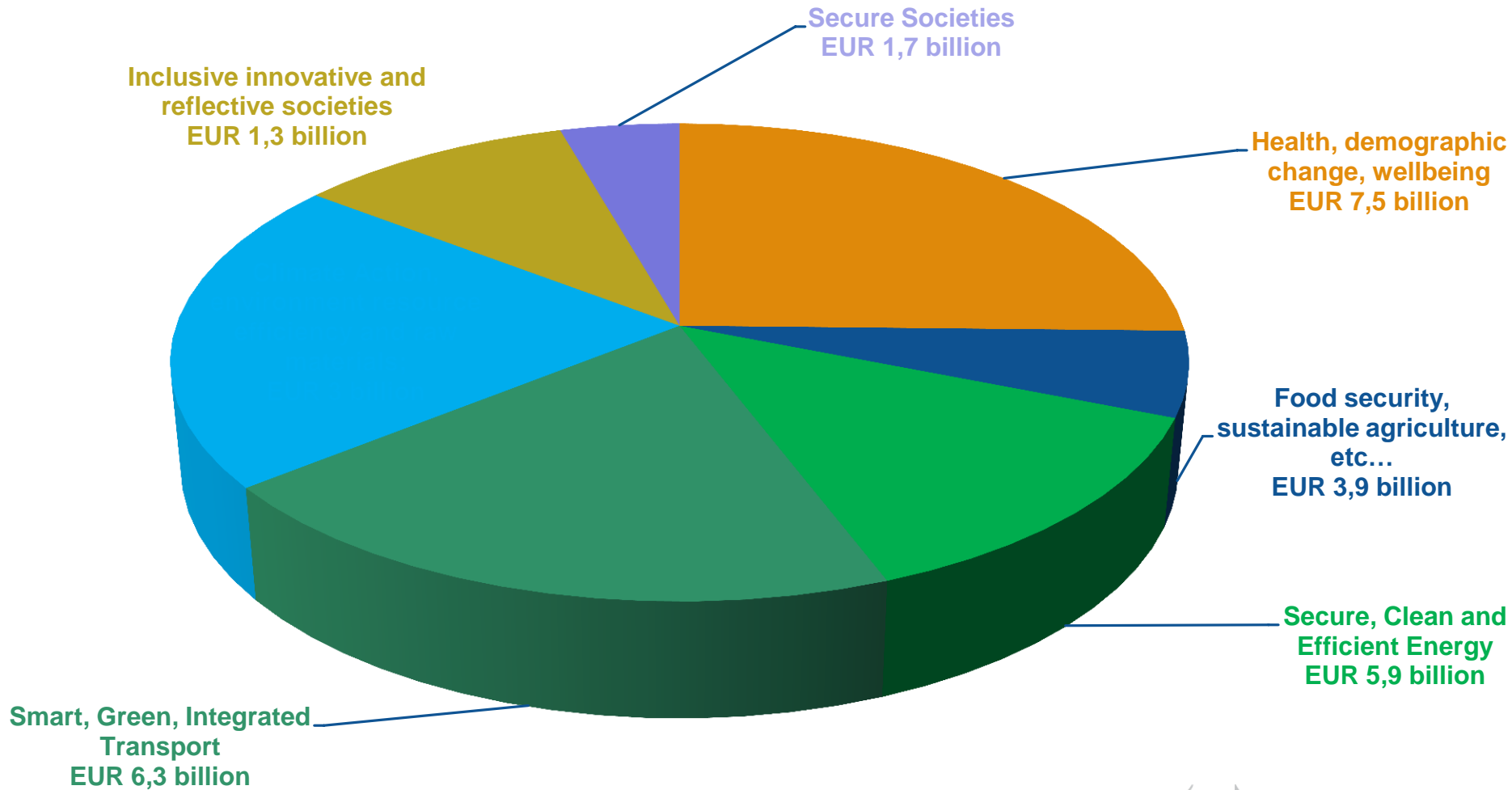
## **Priority 3. Societal challenges**

### **Why:**

- **Concerns of citizens and society/EU policy objectives (climate, environment, energy, transport, etc) cannot be achieved without innovation**
- **Breakthrough solutions come from multi-disciplinary collaborations, including social sciences & humanities**
- **Promising solutions need to be tested, demonstrated and scaled up**

# Societal Challenges

**Total Budget  
EUR 29,7 billion  
38,5%**



# International cooperation

- **International cooperation is crucial** to address many Horizon 2020 objectives
- **Principle of general openness:** the programme is the most open funding programme in the world
- Horizon 2020 shall be open to the **association** of: acceding countries, candidate countries and potential candidates and selected international partner countries that fulfil the relevant criteria (capacity, track record, close economic and geographical links to the Union, etc.)
- Targeted actions to be implemented taking **a strategic approach to international cooperation**

# Challenge 3

## "Secure, Clean and Efficient Energy"

# Thematic scope of the Energy Challenge

- **Reducing energy consumption and carbon footprint by smart and sustainable use**

*New concepts, components and systems for buildings, cities, industry and people*



- **Low-cost, low-carbon electricity supply**

Novel RE, efficient and flexible fossil fuel plants & CCS, or CO<sub>2</sub> re-use tech

- **Alternative fuels and energy sources for mobility**

*Bio-energy, power & heat, all forms of transport, H and fuel cells, new forms*

# Thematic scope of the Energy Challenge

- **A single, smart European electricity grid**

*Smart energy grid technologies, storage, systems & market designs for inter-operable networks, standards, emergency*

- **Market uptake of energy innovation**

*Applied innovation, standards, non-tech barriers, smart & sustainable use*



- **New knowledge and technologies**

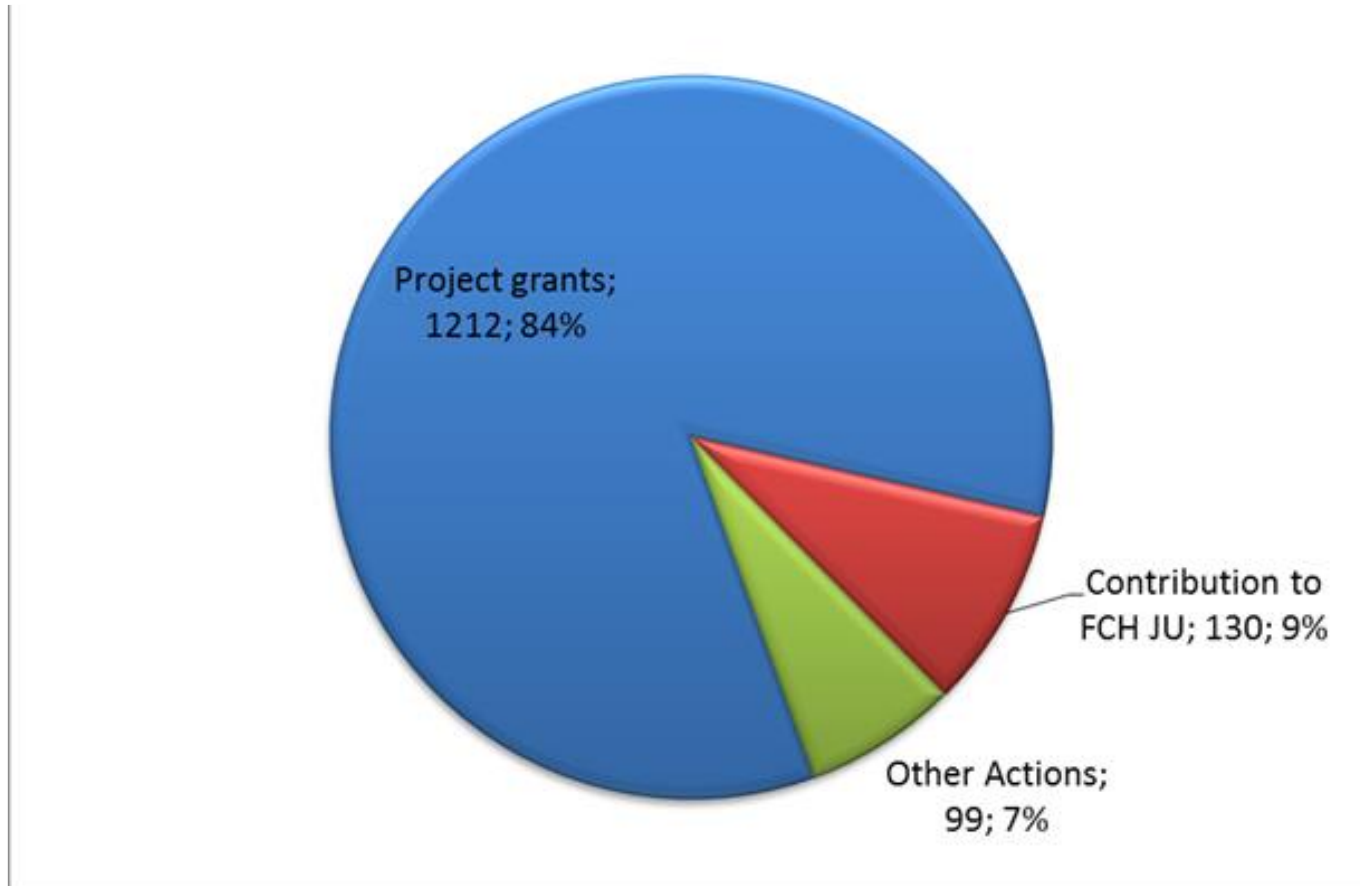
*Multi-disciplinary research for energy technologies (including visionary actions)*

- **Robust decision making & public engagement**

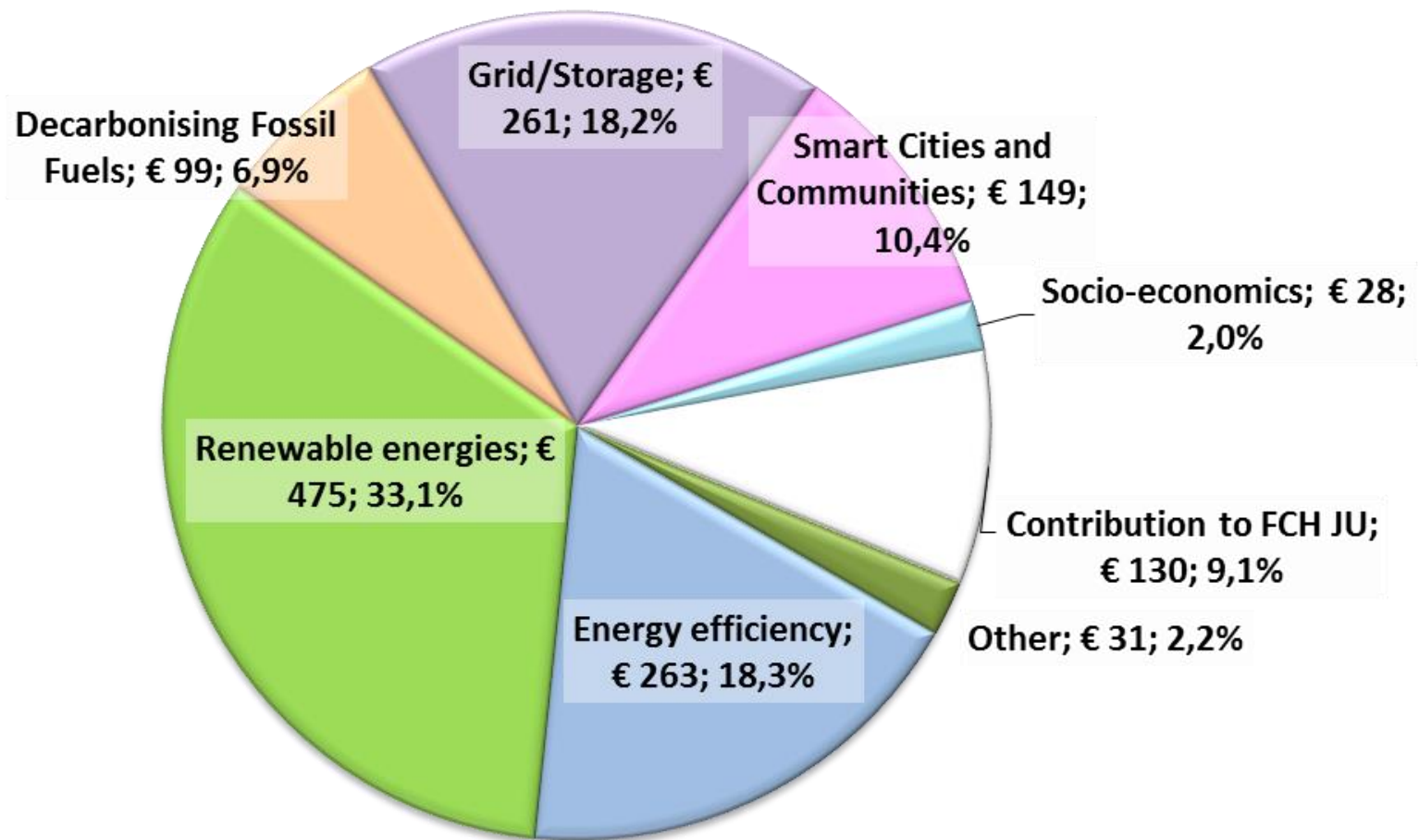
*Tools, methods, models and perspectives for a robust and transparent policy support*



# Budget use of the Energy Challenge (2014-2015)



# Budget distribution among the different thematic areas (2014-2015)





# Renewable Energy Generation

# All renewable sources are in scope:

- **Wind**
- **Hydro**
- **Solar PV**



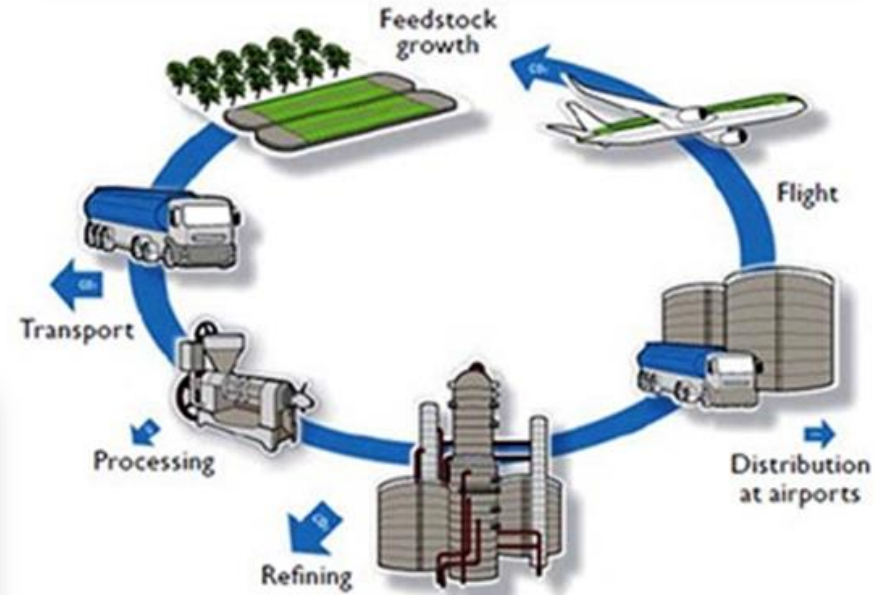
# All renewable sources are in scope:

- **Geothermal**
- **Concentrated Solar**
- **Solar Heating**

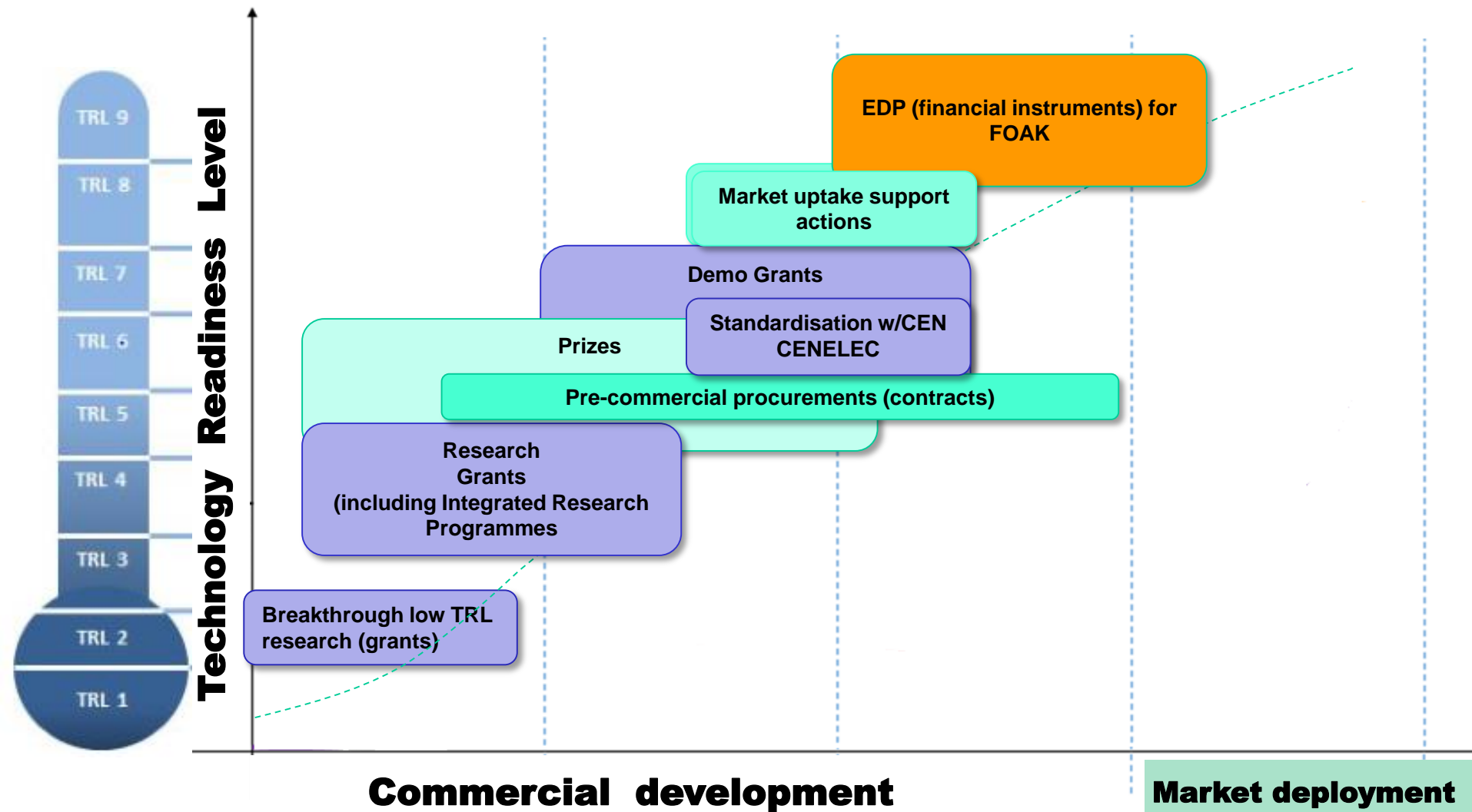


# All renewable sources are in scope:

- Biomass from different sources and different processes for different uses



# The full innovation cycle is in scope:



# EU-Africa Research & Innovation Partnership on Climate Change and Sustainable Energy

HORIZON 2020



# Conclusions from previous studies:



- Improvement of African R&I capacity
- Reinforcement of research infrastructure
- Making use of Member State strengths and specialisations in renewable energy
- Co-ownership: greater involvement of African players in the early stages of programme preparation
- Co-financing: is a powerful way of promoting co-ownership
- Make use of existing initiatives in other areas Improve the participation of private players - a gradual process.

# Joint Programming with EU and African partners for a R&I actions in the area of renewable energy



## Objective:

- Build local capacities and promoting research, including applied research, as a pillar in the development of sustainable energy in Africa;
- Contribute substantially to technology take-up in the region;
- Strengthen the market position of involved European institutions through increased knowledge and competitive capacity.

Scope: Bring together the national funding agencies of EU member states and African states interested in developing joint research activities to create synergies and to push forward common research and innovation cooperation in the field of renewable energy generations.

Activities will cover the **research and development of new or the adaptation of renewable energy generation technologies to the African environmental, social and economic conditions, providing affordable access to renewable energy and improving the innovation cycles.**



# Next Steps:

## **Preparatory step - LC-SC3-JA-4-2018:**

12 months duration, 1 mil Eur EU financial contribution

A consortium that will bring together the core relevant European funding agencies and African partners, to define **a common strategic joint research and innovation programme on renewable energy technology**, to establish its organizational principles and to reinforce and boost European and African research cooperation.

## **Implementation phase - LC-SC3-JA-5-2019:**

5 years duration, 15 mil Eur EU financial contribution

This action will implement the common strategic joint research and innovation programme on renewable energy technology developed in the preparatory phase, to adapt renewable energy technologies to the African environmental, social and economic conditions through joint research efforts.

**It will include research projects, demonstration projects, technology transfer projects, and exchange of researchers between European and African actors.**



# HORIZON 2020

**Thank you  
for your attention!**

**Find out more:**  
[www.ec.europa/research/horizon2020](http://www.ec.europa/research/horizon2020)