



# Fuel Cells and Hydrogen in the European Policy

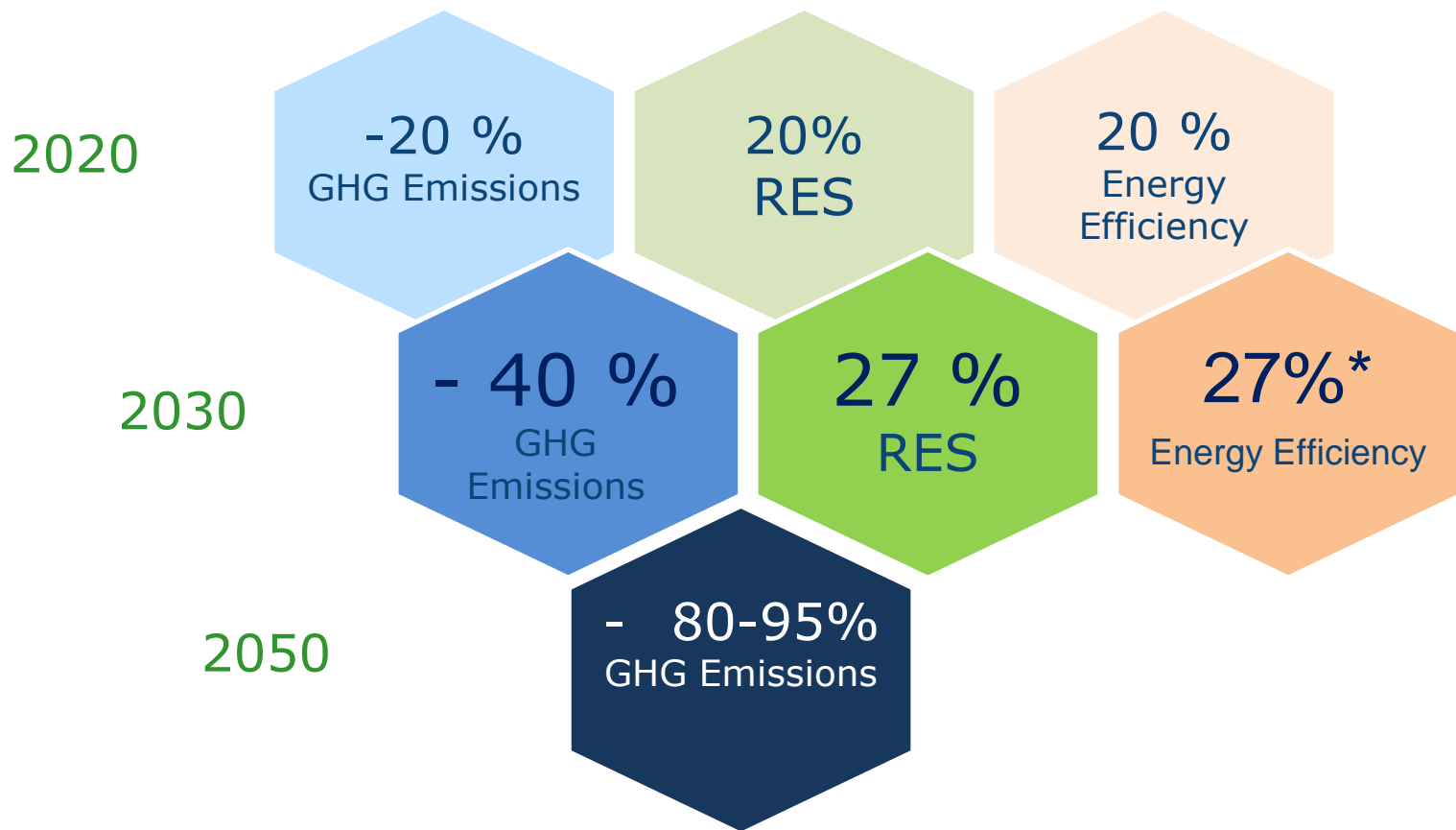
José Cotta

DG Research and Innovation

European Commission

# The EU's 2030 targets for climate and energy

European  
Commission



# Europe needs to move towards a flexible and adaptive energy system

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THE ENERGY SYSTEM OF TOMORROW WILL LOOK DIFFERENTLY

2030

50% of electricity to come from  
renewables

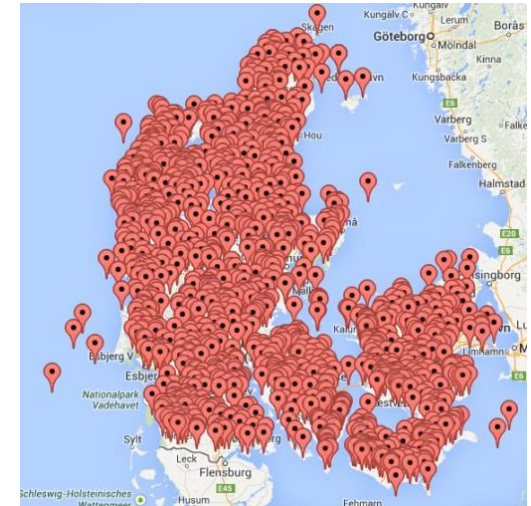


2050

Electricity completely  
carbon free



- Management of high shares of RES
- The right incentives for low-carbon tech
- Lowering technology costs
- Synergies between RES & fossil fuels
- Decarbonising transport, industry & buildings



Wind turbines in Denmark

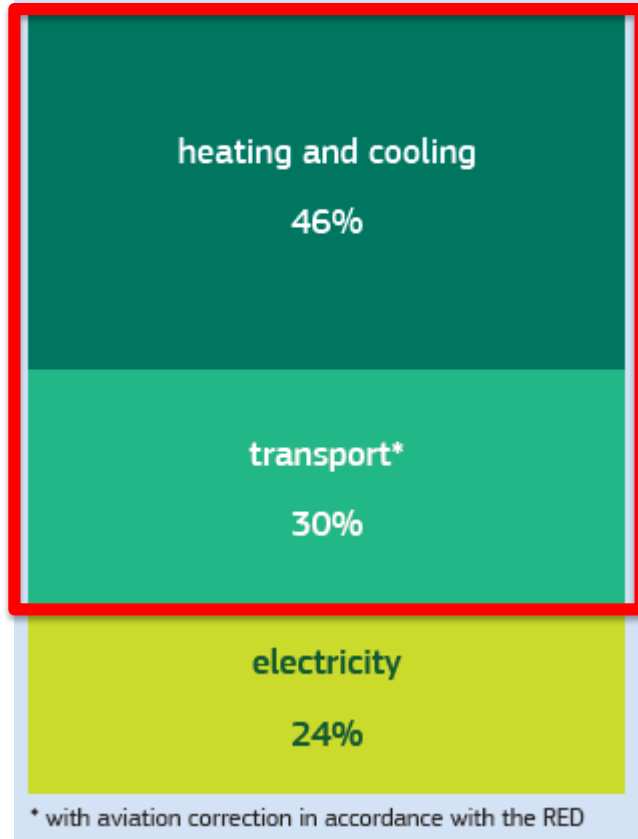


**Electricity storage is an enabler**

# Decarbonising other sectors (transport, buildings, industry...)

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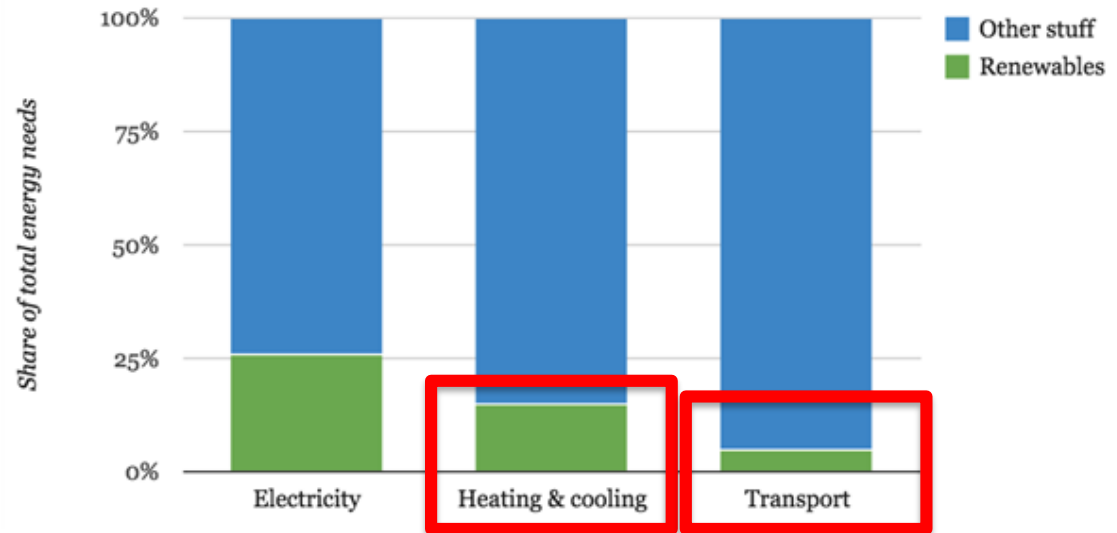
## 2014 final energy consumption



\* with aviation correction in accordance with the RED

Source: EC, 2015 renewable energy progress report

## Renewable share of the EU energy mix for electricity, transport and heating and cooling:



Source: Eurostat




# But ultimately it is all about creating growth & jobs

## MAKING THE EU WORLD NUMBER ONE IN RENEWABLE ENERGY: THE FIVE KEY AREAS




**EUROPE**  
INVESTS IN R&I  
FOR RENEWABLES




**€4 BILLION**  
**A YEAR**

**RENEWABLES**  
CREATE EUROPEAN JOBS

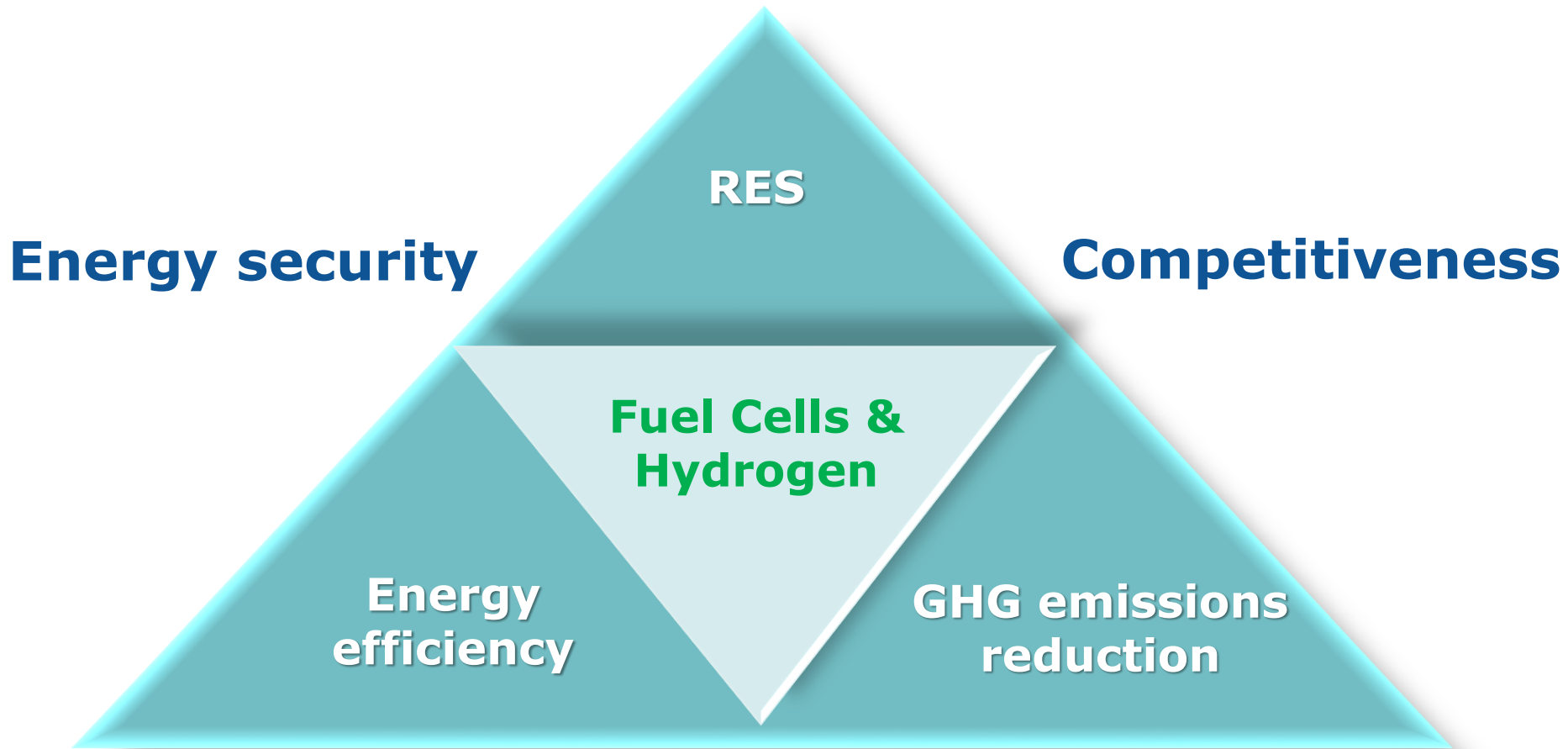


**MORE THAN 1 MILLION**  
**EUROPEANS WORK**  
**IN THE SECTOR**



**THIS IS TWICE THE WORLD**  
**AVERAGE PER CAPITA**

# FCH technologies contribute to European policy objectives



# FCH JU is a strong Public-Private Partnership with a focused mission

European Commission

Budget of €1.33 billion in 2014 - 2020

## Fuel Cells & Hydrogen Joint Undertaking (FCH2 JU)



**Industry Grouping**  
100+ members  
~ 50% SME



**Research Grouping**  
Over 60 members



**Strategic objective:**

**To bring FCH technologies to the point of market readiness by 2020**

The Joint Undertaking is managed by a Governing Board composed of representatives of all three partners and lead by Industry.

**Legal basis:**

Council Regulations:

521/2008 of 30 May 2008 (FP7)

559/2014 of 6 May 2014 (H2020)

# FCH JU's specific objectives

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## H<sub>2</sub> STORAGE FOR GRID BALANCING

Demonstrate on a large-scale hydrogen's capacity to harness power from renewables and support its integration into the energy system



## HEAT & ELECTRICITY PRODUCTION

Increase fuel cell efficiency and lifetime



## GREEN HYDROGEN PRODUCTION

Increase efficiency and reduce costs of hydrogen production, mainly from water electrolysis and renewables



## MINIMAL USE OF CRITICAL RAW MATERIALS

Reduce platinum loading

**FCH JU – KEY TO  
SUSTAINABLE ENERGY  
AND TRANSPORT ...**

... MAKING FUEL CELLS AND  
HYDROGEN AN EVERYDAY REALITY.



## CLEAN TRANSPORT

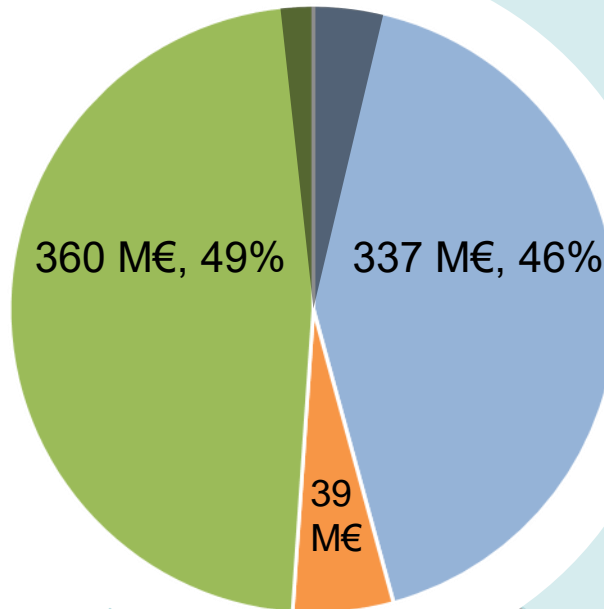
Reduce fuel cell system costs  
for transport applications

# 204 projects supported to date by the FCH JU for 737 M€

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Commission

## ENERGY 117 projects

- Hydrogen production and distribution
- Hydrogen storage for renewable energy integration
- Fuel cells for power & combined heat & power generation



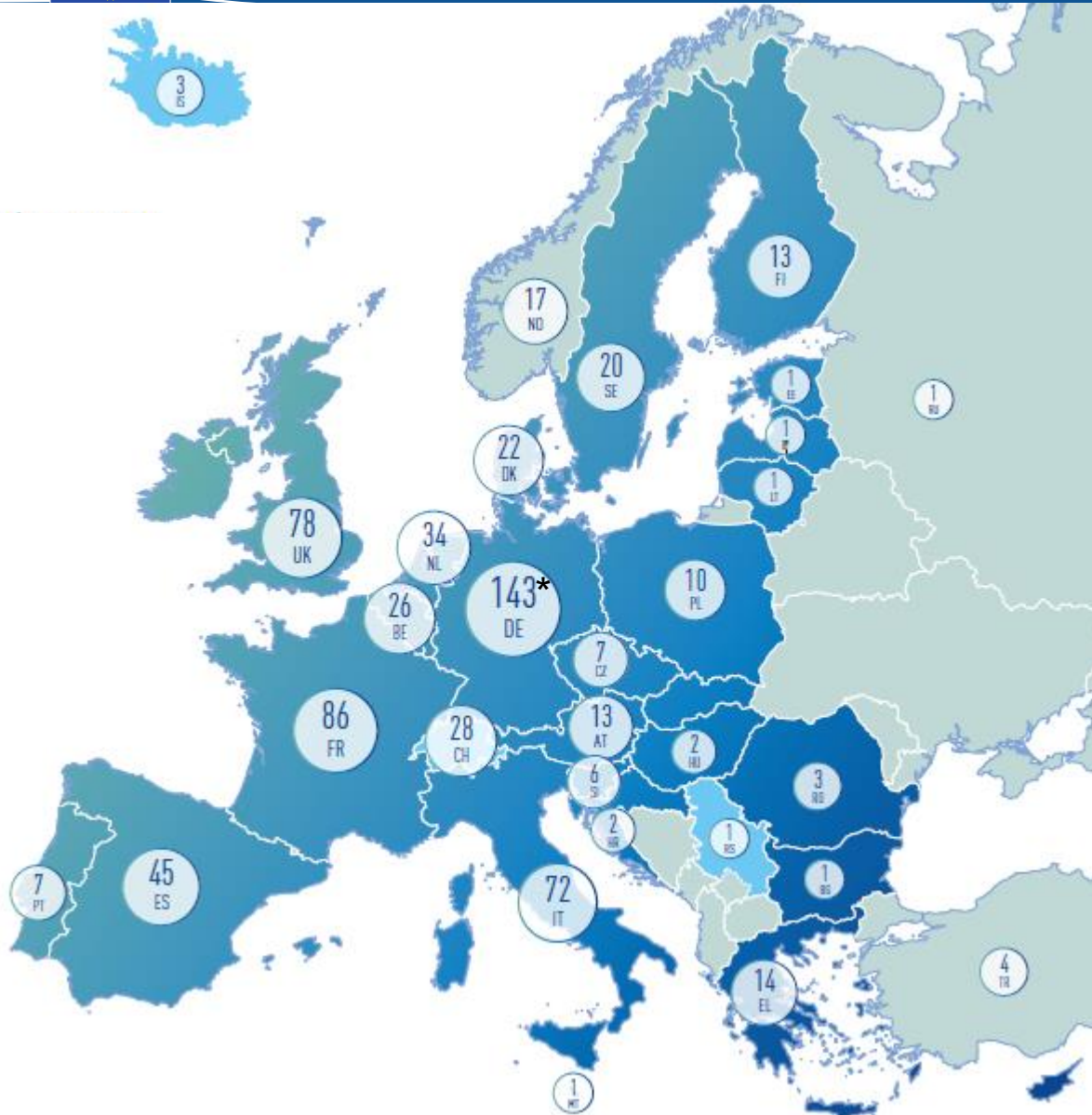
## TRANSPORT 53 projects

- Road vehicles
- Non-road vehicles and machinery
- Refuelling infrastructure
- Maritime, rail and aviation applications

## Cross-cutting, 34 projects

(e.g. standards, safety, education, consumer awareness, ...)

# FCH JU: Creating a strong & competitive FCH sector in Europe



## 571 Beneficiaries:

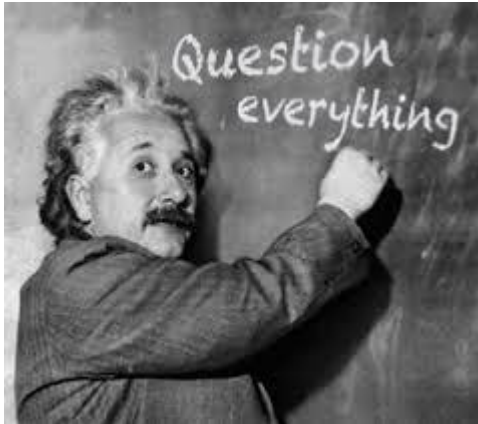
- 63% Industry
- 27% Research Organizations
- 4% High Education Institutions
- 6% Others

NON EUROPE	
CANADA	3
CHINA	2
ISRAEL	2
REPUBLIC OF KOREA	1
UNITED STATES	2

\* Number of organisations participating in FCH JU's projects per country

# Thank you for your attention !

## Any questions?



*More info:*

- *European Commission:* <https://ec.europa.eu/>
- *FCH JU :* [www.fch.europa.eu](http://www.fch.europa.eu)
- *Hydrogen Europe:* [www.hydrogeneurope.eu](http://www.hydrogeneurope.eu)
- *N.ERGHY :* [www.nerghy.eu](http://www.nerghy.eu)