

# The European Commission's science and knowledge service

Joint Research Centre

## Energy Union: Technology Research & Innovation

Stathis Peteves  
Head of Unit

Knowledge for Energy Union





# ENERGY UNION

- 1. Energy security, solidarity and trust**
- 2. A fully integrated European energy market**
- 3. Energy efficiency contributing to moderation of demand**
- 4. Decarbonising the economy**
- 5. Research, Innovation and Competitiveness**

# Energy Union - Innovation

---

## The 6 "Ds" or innovation-driven challenges of the Energy Union:

- ✓ **Democratisation**
- ✓ **Decentralisation**
- ✓ **Decarbonisation**
- ✓ **Diversification**
- ✓ **Digitisation**
- ✓ **Disruption**



# Understanding 'Innovation'

---



*Courtesy: VESTAS*



*Courtesy: Solarcentury*

# SET-Plan: a new approach to innovation



## Changing the way we think:

- tech - centric
- sectoral concerns
- inputs focus
- funding

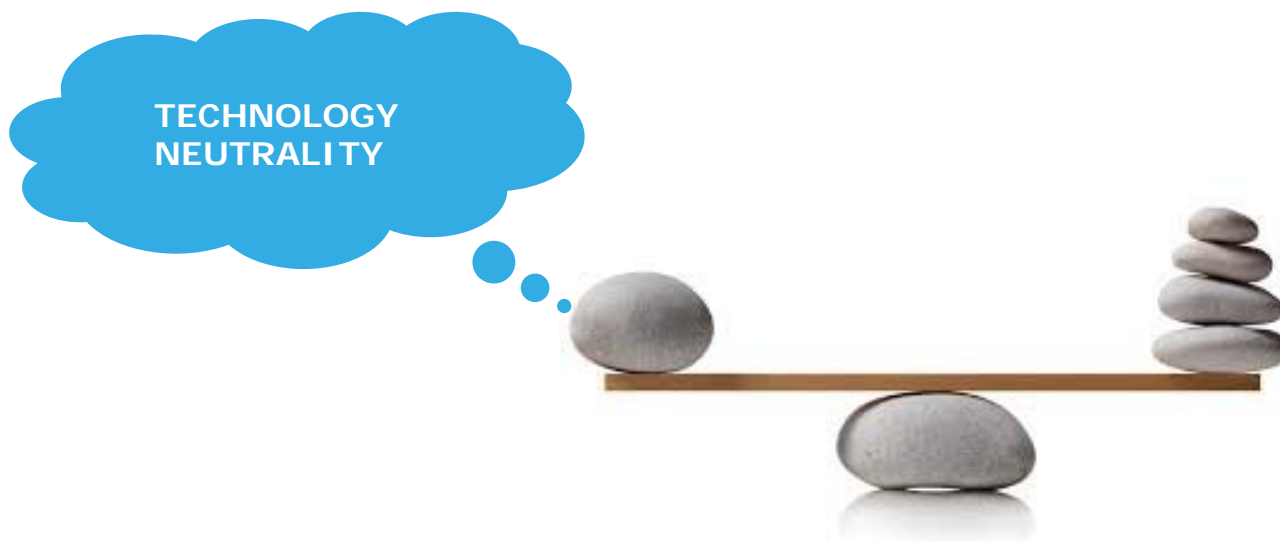


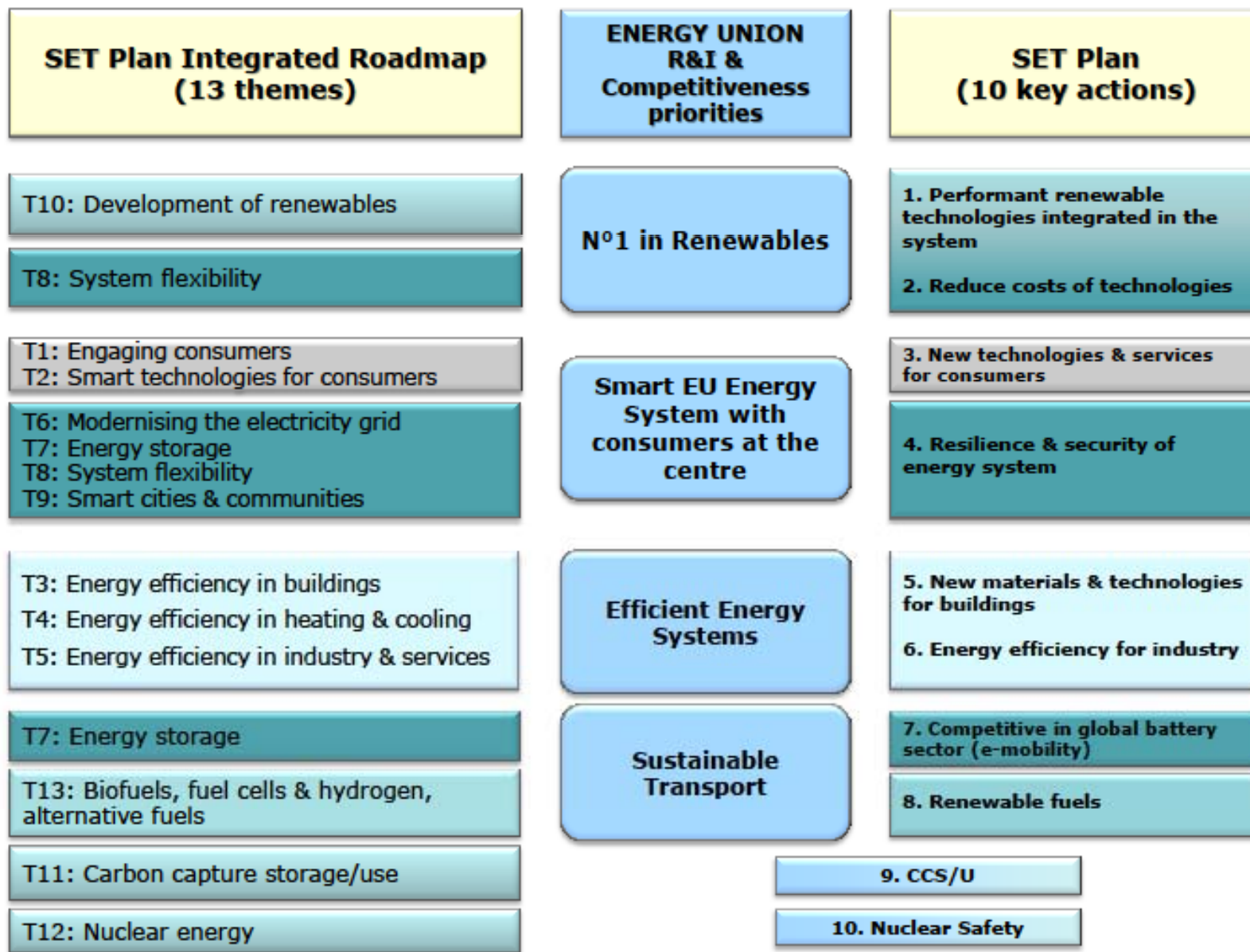
- services & user
- systemic benefits
- outputs emphasis
- investments

# Technology portfolio - prioritisation nexus

---

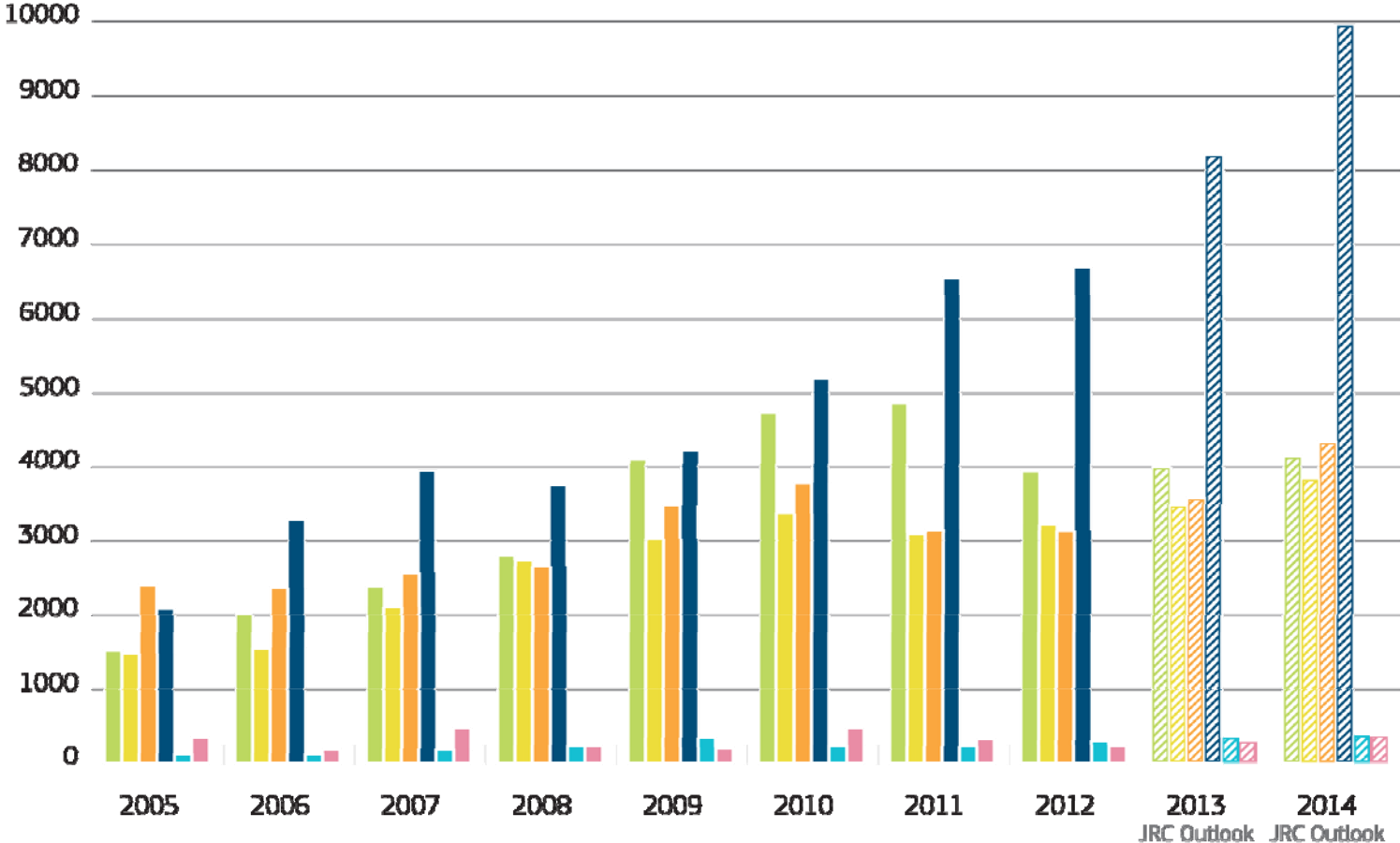
- **Systemic benefits**
- **Products or Process**
- **Breakthrough & Break-in**





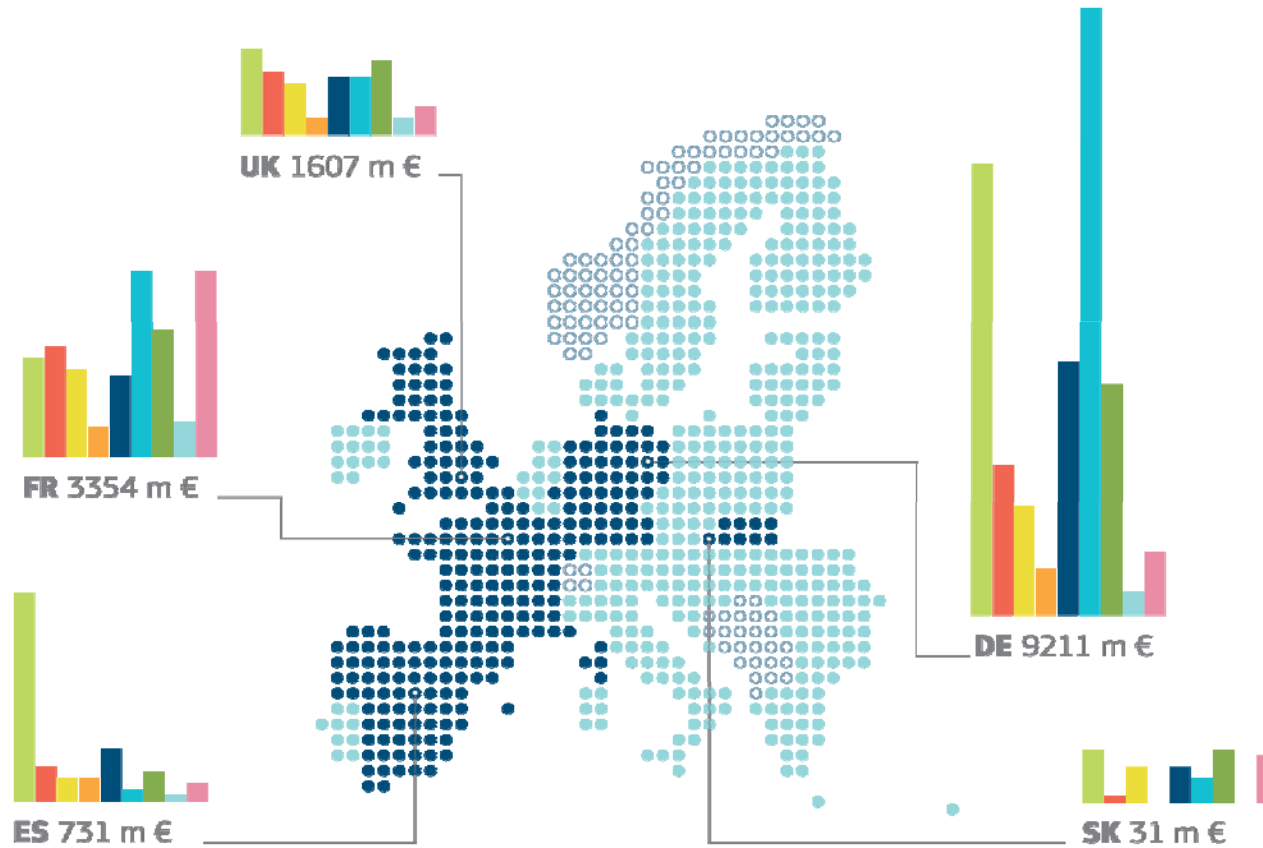


# Total investments are increasing



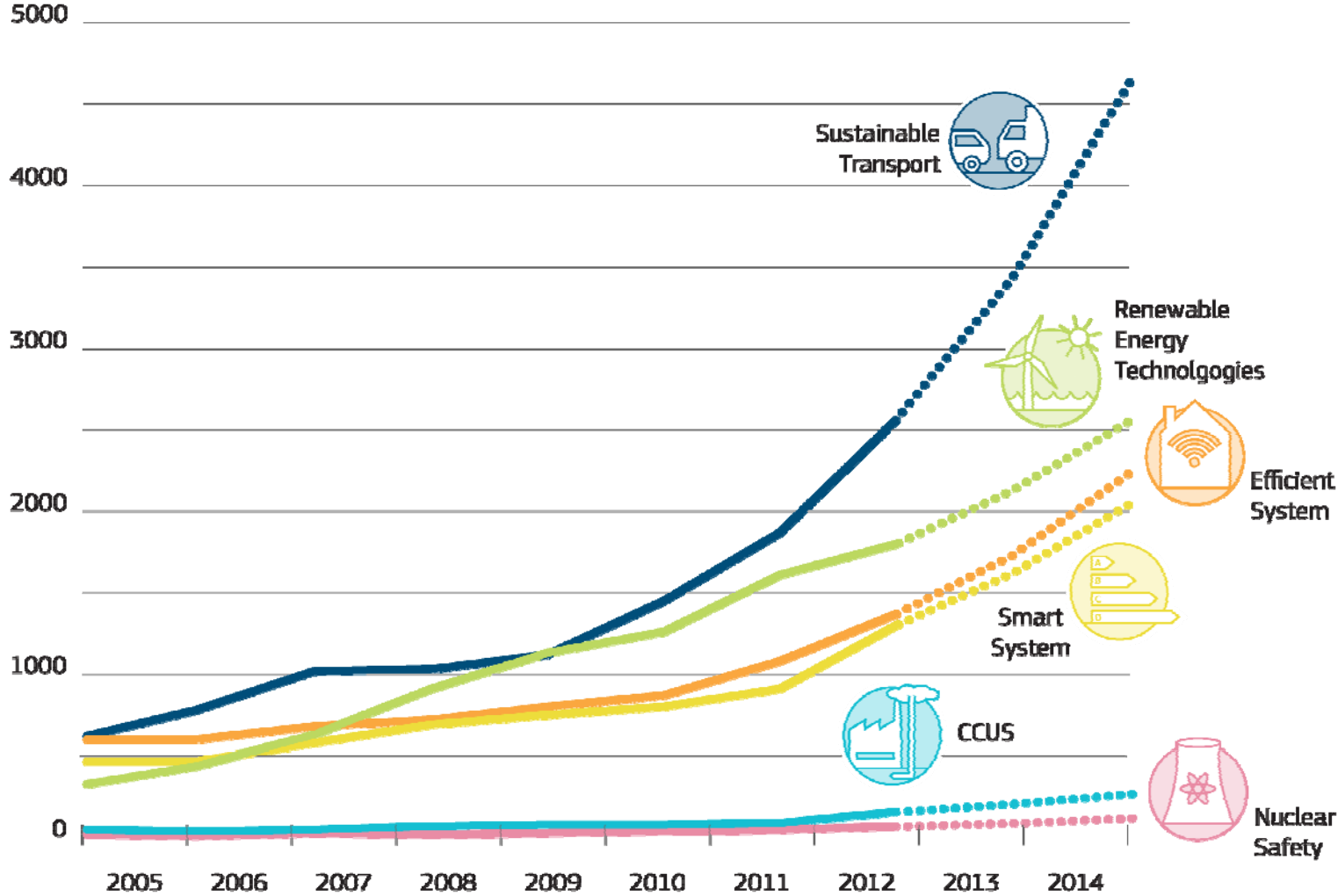
No. 1 Renewables	Efficient Systems	CCUS
Smart System	Sustainable Transport	Nuclear Safety

# Diverse national priorities

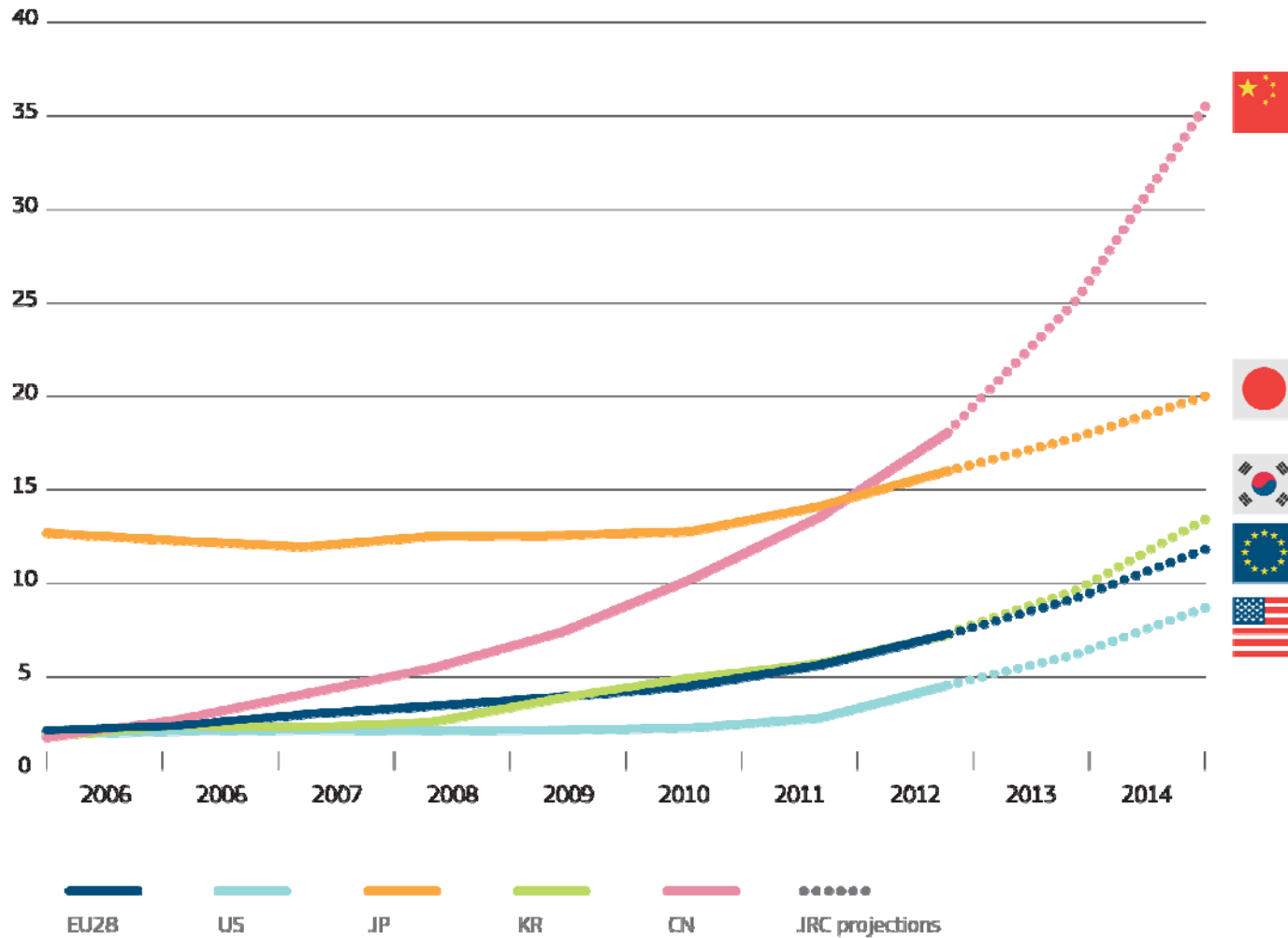


Renewable Energy Technologies	Energy Efficiency Systems	Renewable Fuels and Bioenergy
Smart Solutions for Consumers	Energy Efficiency in Industry	CCUS
Integrated and Flexible Energy System	Batteries and E-mobility	Nuclear Safety

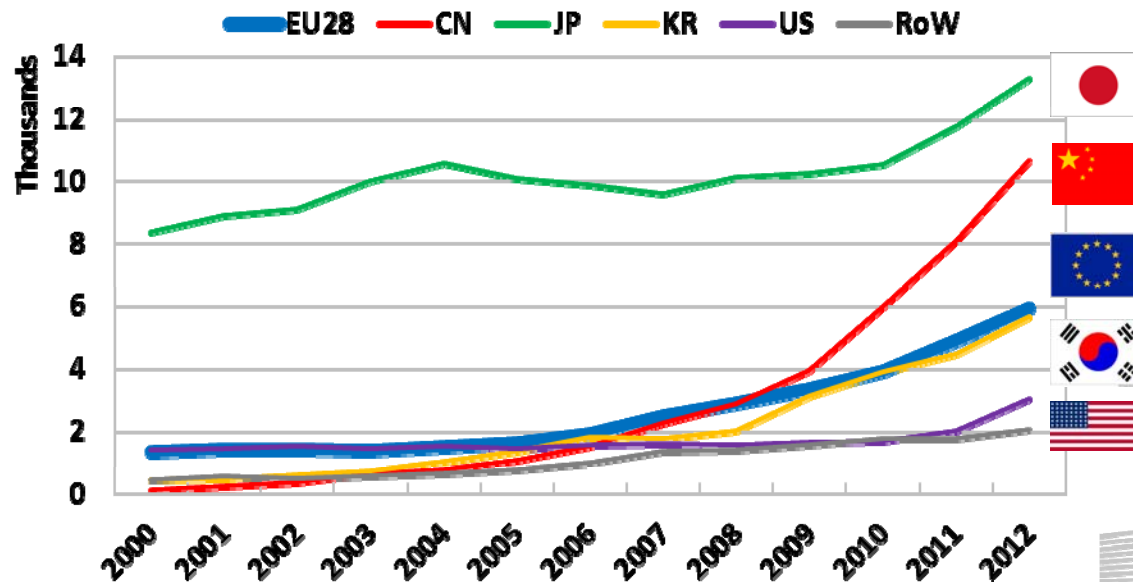
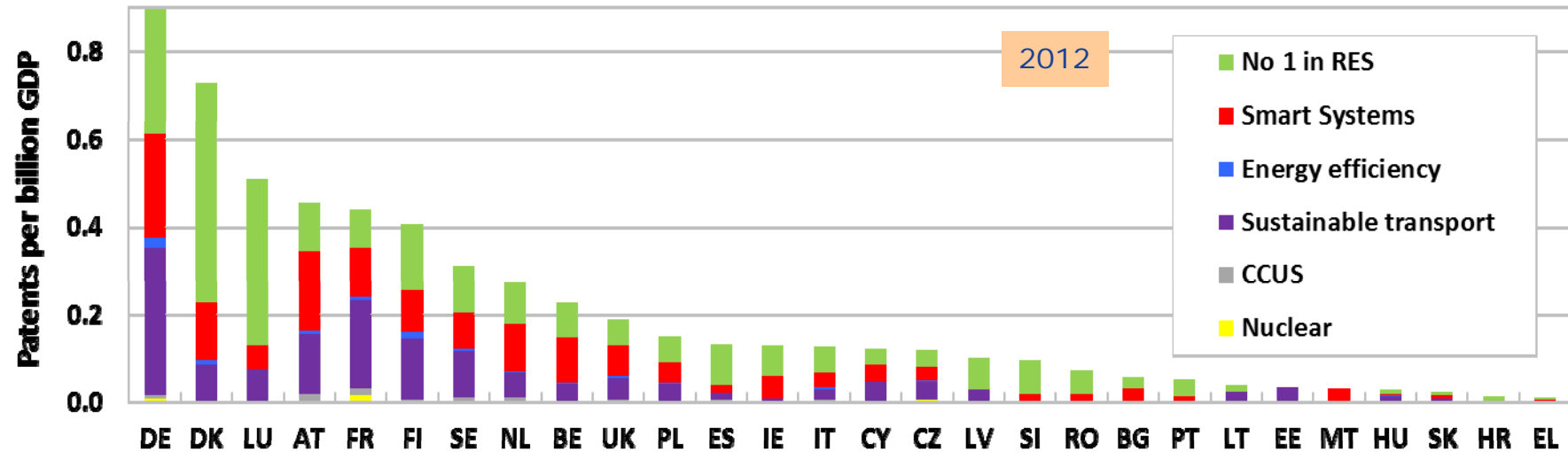
# Inventions in energy technologies in the EU



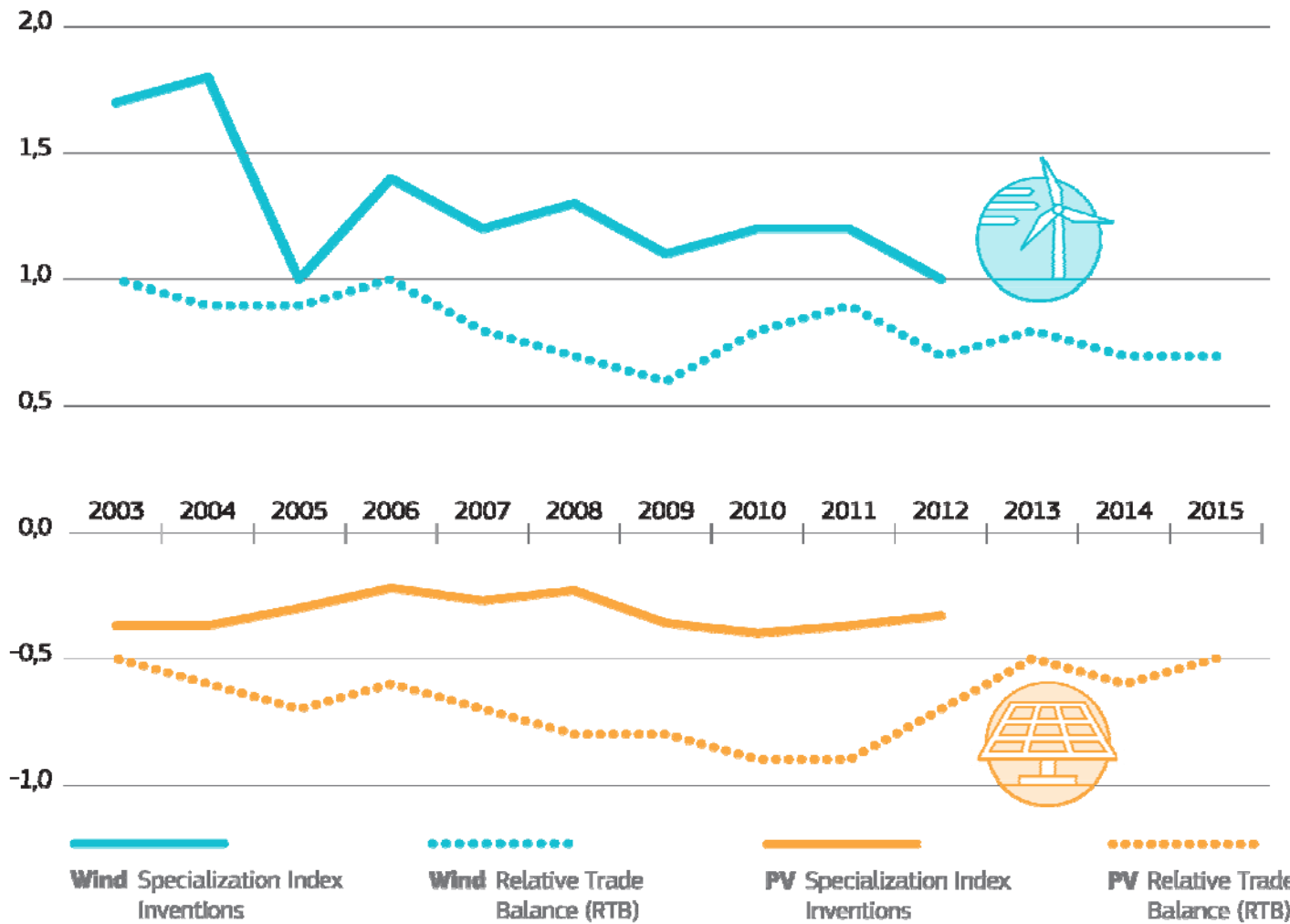
# Global patent landscape



# Assessing European innovation: Trends in patents

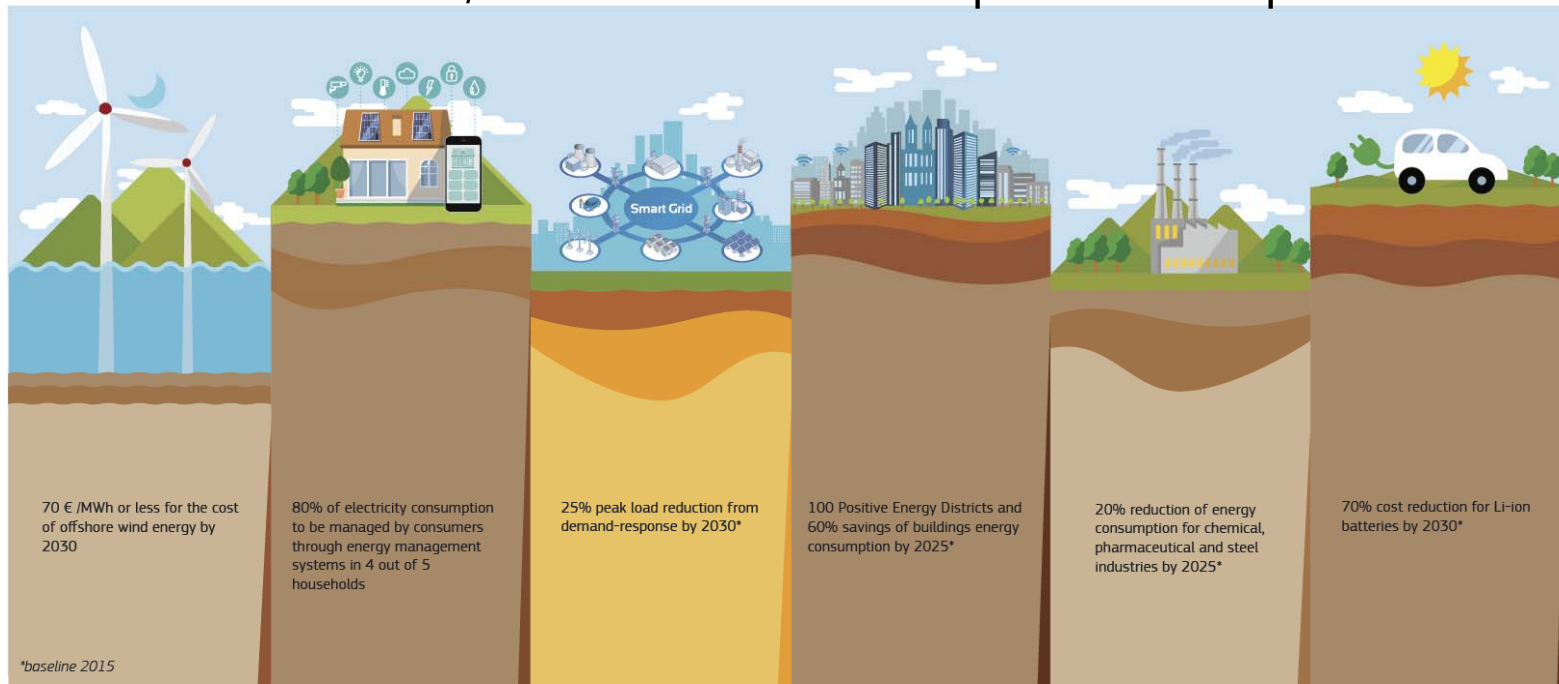


# Further indicators: The case of trade and patent specialisation

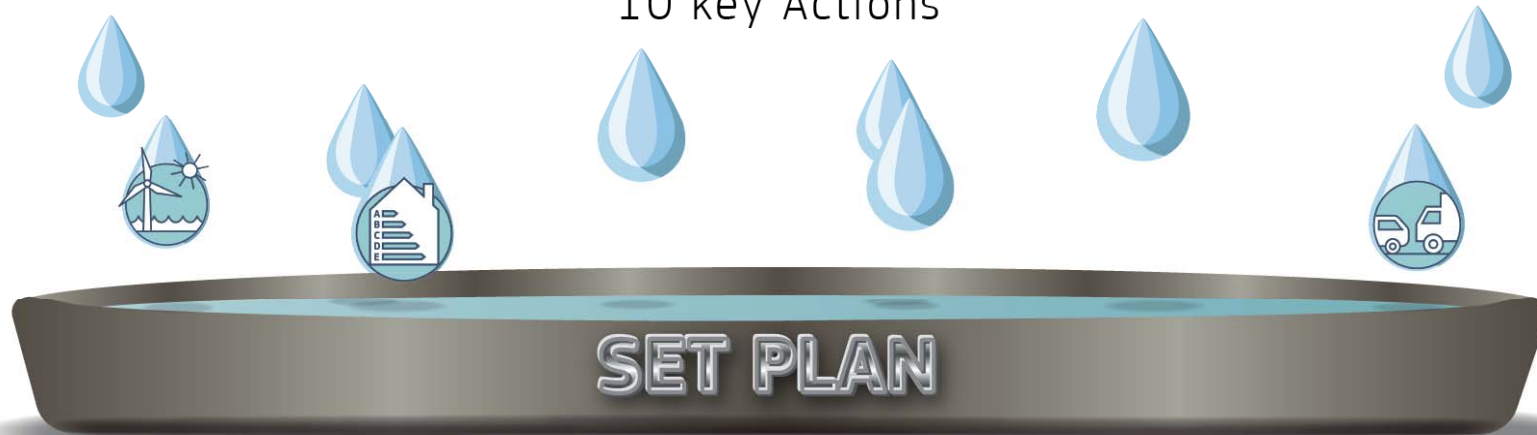


# The Energy Union and the SET-Plan

## Core Research, Innovation and Competitiveness priorities



### 10 key Actions



## Clean Energy R&I as a part of the Energy Union Winter Package

➤ **R&I as drivers for the 3 overarching goals of the Winter Package:**

**Energy efficiency first**

**Europe as a global leader in renewables**

**A fair deal for consumers**



# ACCELERATING CLEAN ENERGY INNOVATION

The Communication focusses on what the EU can do pragmatically to correct the market failure and to set the direction into the future.

Correct the market failure by:

- Regulations to give policy signals
- Mobilising private investment

Set the direction with:

- European public funding

→ *A set of 20 concrete cross-cutting actions are proposed to be implemented by several services of the Commission*

## ACCELERATING CLEAN ENERGY INNOVATION

The EU is one of the global leaders and largest public funders of clean energy R&I → Horizon 2020 (2014-2020) intends to allocate over €10 billion in energy funding to clean energy R&I.

In 2014, the funding from Horizon 2020 for low-carbon technologies reached **€ 1.1 billion** while public investment from national R&D programmes account for nearly **€ 4.2 billion**.

# ACCELERATING CLEAN ENERGY INNOVATION

The EC intends to deploy more than EUR 2 billion from the Horizon 2020 WP 2018-2020 to support R&I projects in 4 priority areas:

*Decarbonising the EU building stock*

*Strengthening EU leadership on renewables*

*Developing affordable and integrated energy storage solutions*

*Electro-mobility and a more integrated urban transport system*

# Thank you for your attention!

## Stay in touch



JRC Science Hub:  
*[ec.europa.eu/jrc](https://ec.europa.eu/jrc)*



Twitter:  
*[@EU\\_ScienceHub](https://twitter.com/EU_ScienceHub)*



Facebook:  
*[EU Science Hub – Joint Research Centre](https://www.facebook.com/EU_Science_Hub_-_Joint_Research_Centre)*



LinkedIn:  
*[Joint Research Centre \(JRC\) - European Commission's Science Service](https://www.linkedin.com/company/joint-research-centre-jrc-european-commission-science-service)*



YouTube:  
*[JRC Audiovisuals](https://www.youtube.com/JRC_Audiovisuals)*



Vimeo:  
*[Science@EC](https://vimeo.com/Science@EC)*

SETIS website:  
<https://setis.ec.europa.eu>