



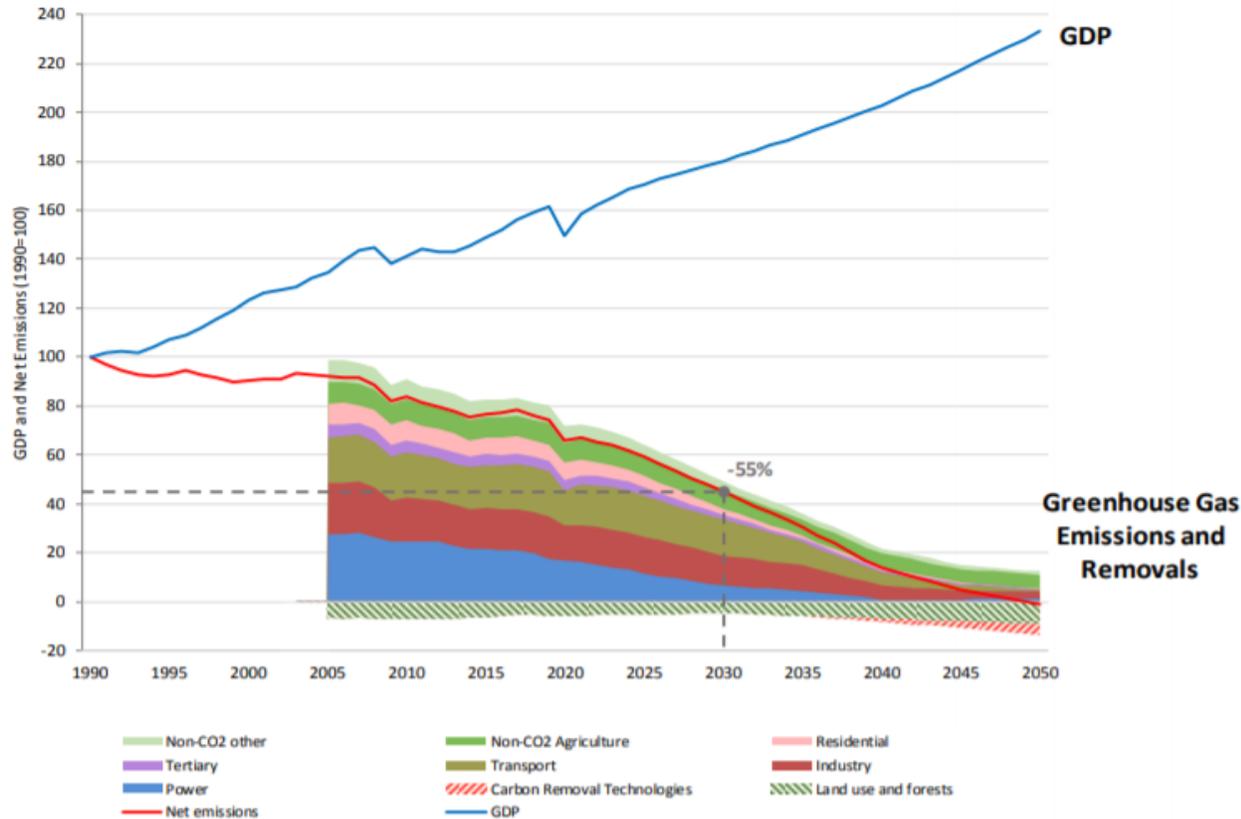
# Introduction to the renewable energy technologies ecosystem

Industrial clusters in the European recovery: September 2020

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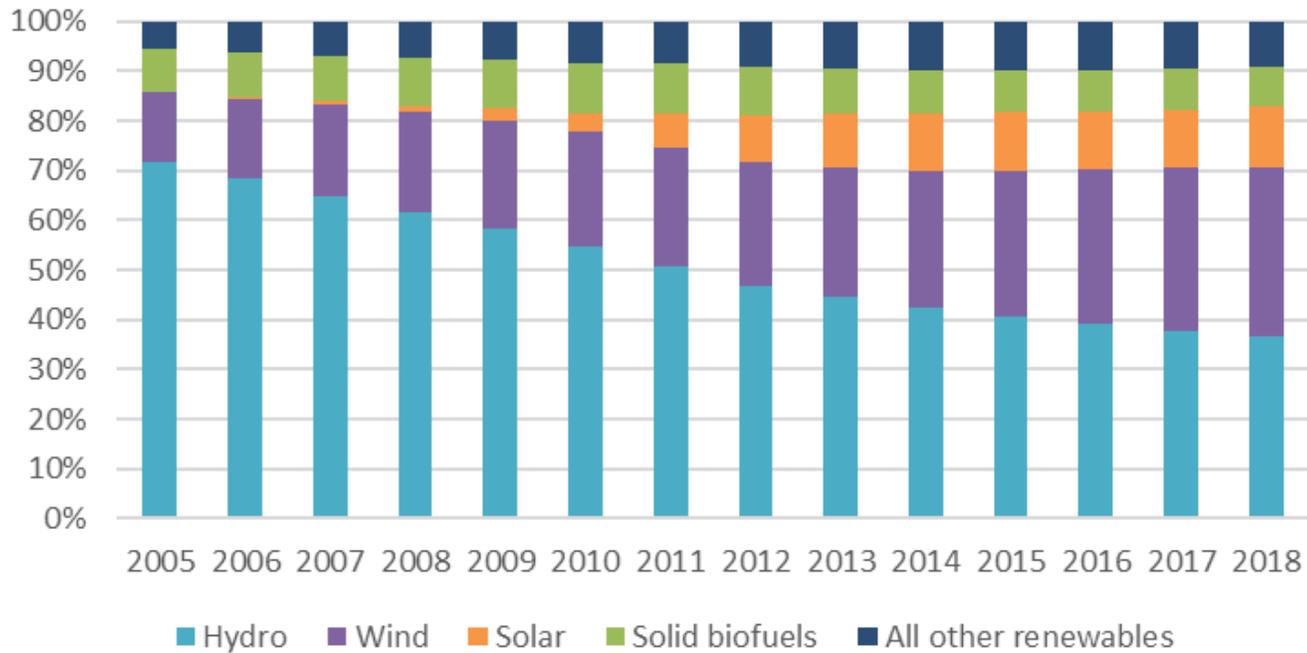
# Setting the context



- **EU Climate Target Plan:** Proposal to cut net greenhouse gas emissions by at least 55% by 2030, compared to 1990 levels, up from our current target for 2030 of at least 40%.
- Role of renewables in this process

*The EU's pathway to sustained economic prosperity and climate neutrality, 1990-2050*  
Source: EU Climate Target Plan, September 2020

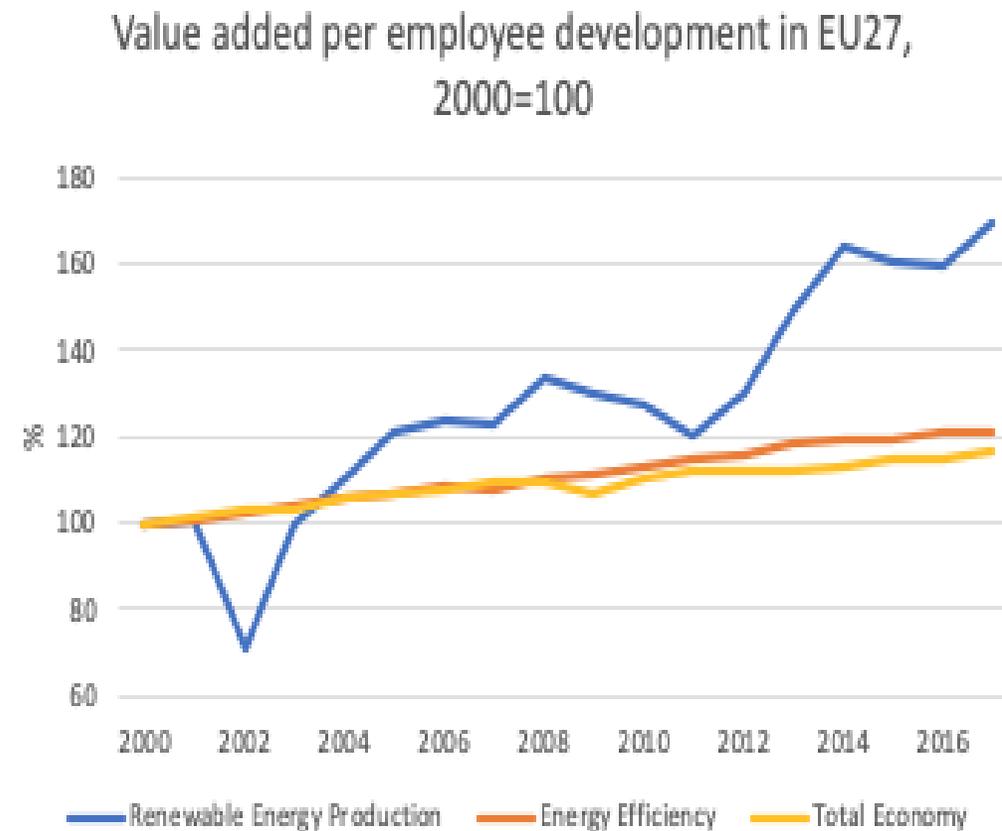
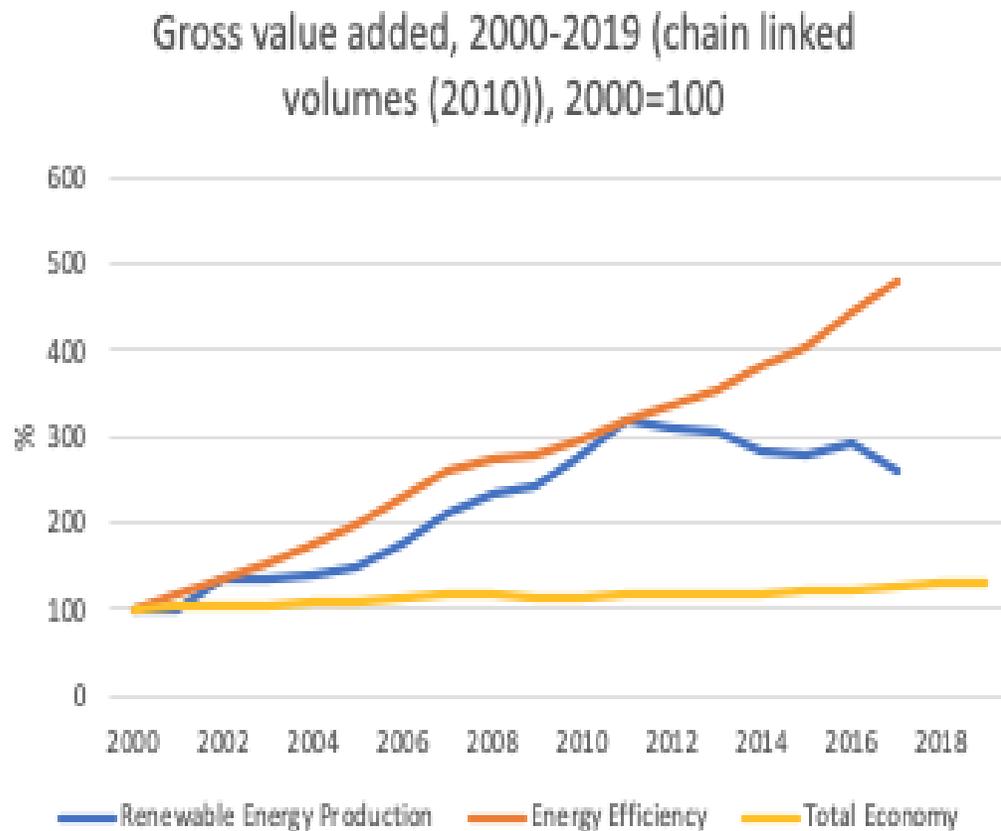
# Which sectors/areas are we talking about?



Technology share in Renewable Electricity EU27

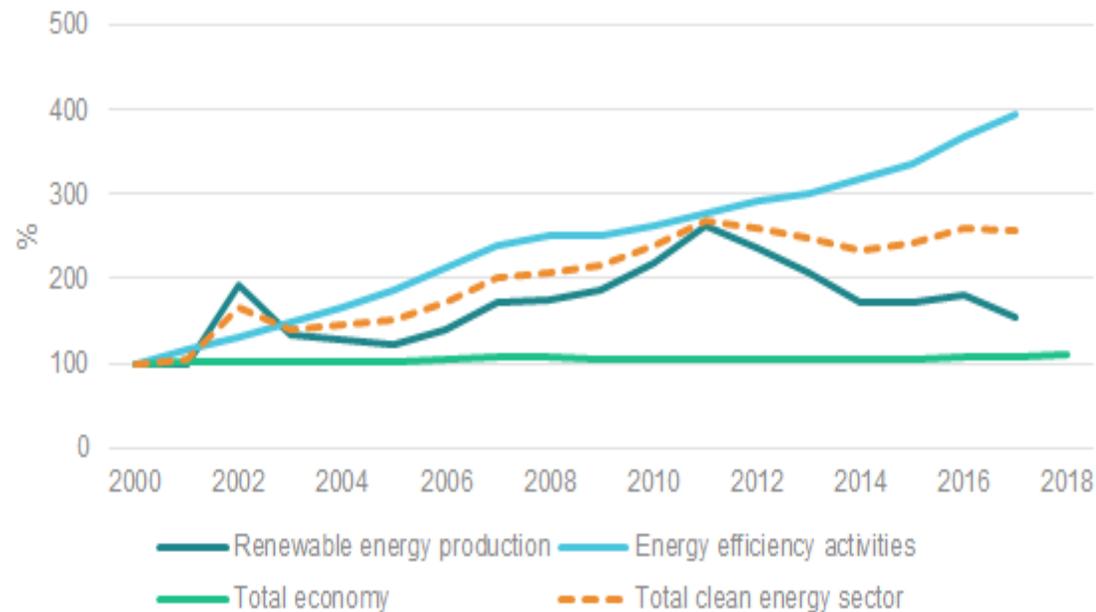
- Between 2005-2018, the share of renewable energy in final energy consumption increased from **10% (2005)** towards the **2020 target of 20%**.
- Shares: Electricity (32%), heating and cooling (21%), and transport sectors (9%).

# How is this ecosystem situated in the whole European market?

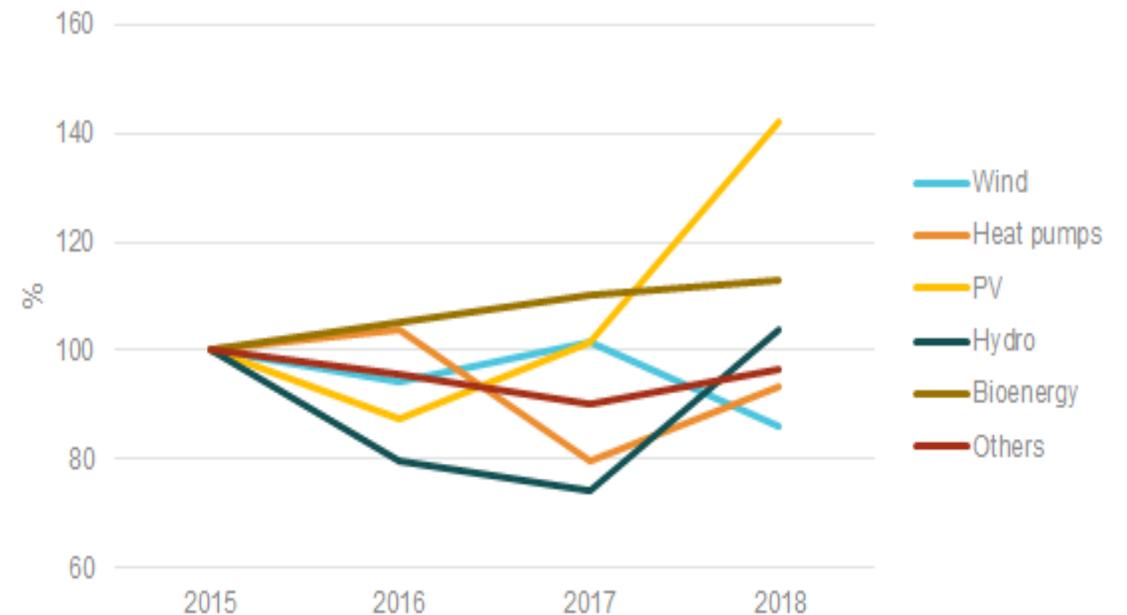


# How is this ecosystem situated in the whole European market?

Clean energy sector vs the rest of the economy (EU-27), 2000=100

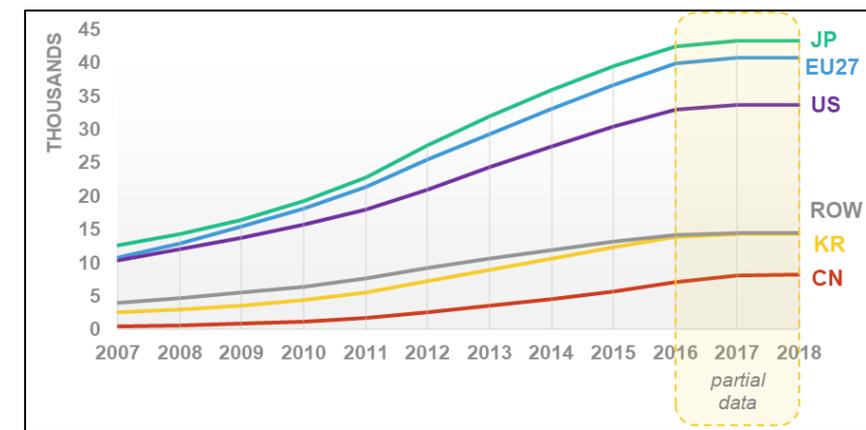
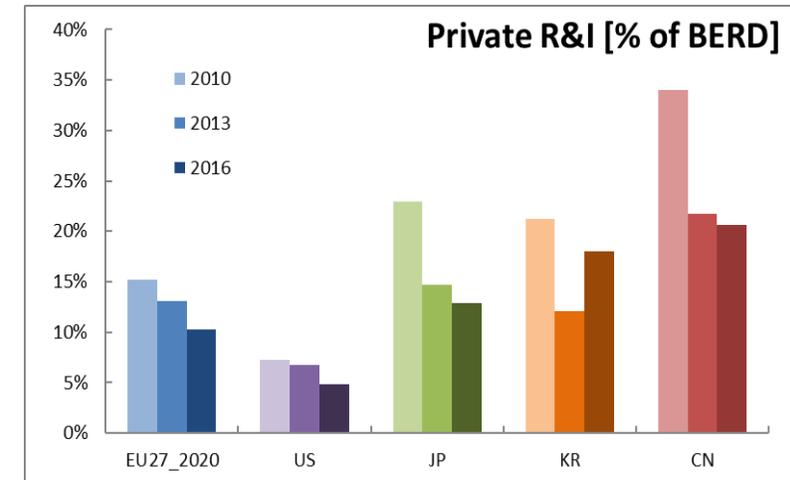
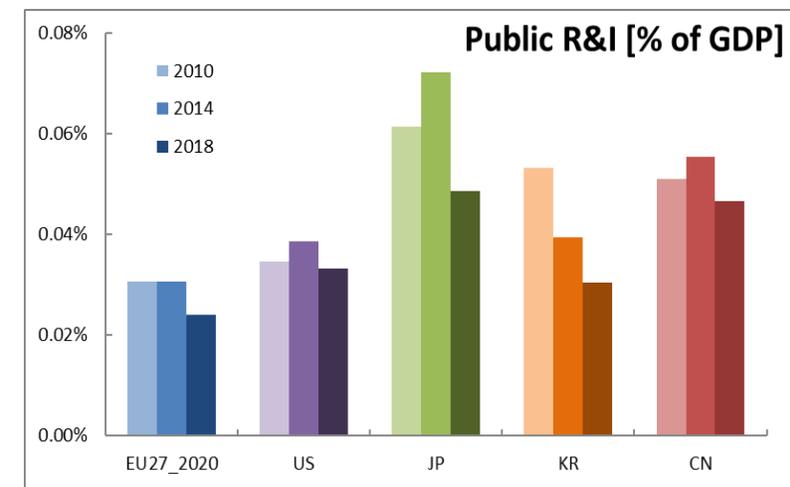


Renewable energy employment EU27, 2015-2018, 2015=100



# Current challenges

- **Declining MS national budgets devoted to clean energy R&I**, with the lowest investment among major global economies when measured as a share of the GDP (*Link recovery*).
- **Declining private sector investments** in the Energy Union R&I priorities, with only a small share of revenues currently spent on R&I in the sectors
- **Declining patenting activity** in clean energy technologies since 2012, although European Union generally files “higher value” patents.



# *Current challenges and opportunities*

-  In the **wind, renewable hydrogen and ocean energy industry**, the expected, multifold increase in the capacity size of the markets suggests that the industry's structure will inevitably change: expertise needs to be pooled across companies and Member States and companies have to re-structure and pool their value chains to realise the required economies of scale and positive spill overs.
-  In **Smart Grids**, EU companies are among market leaders for both hardware and software solutions. We need to increase investments to maintain this competitive edge in a decentralised grid scenario.
-  Sustained efforts to catch up and build a competitive edge is also relevant in areas where the EU does not hold (anymore) a first mover advantage (**solar photovoltaic and Li-ion batteries**). These technologies are particularly important given their projected demand, modularity and spillover potential (eg. spillover between batteries, electrolysers and fuel cells).

# *Current challenges and opportunities*



The importance of **demand side considerations**, in particular the crucial factor a home market plays to develop strong industrial competitiveness



At the global level, the role of **international cooperation** to reduce the cost of the transition, bring technologies to the market and cooperate to create a common frame for action. There is a need to assess the (positive or negative) externalities of the political choices/ambition we are making (i.e. social standards of our economy, sustainability and circular economy)

**R&I investments** are decreasing. The reduced (public and private) spending put at risk the long term development of key technologies needed to decarbonise the economy and reach the ambitious objectives of the European Green Deal.