

## Re-industrialization of EU & the Energy Union

### The Contribution of Advanced Materials for Low Carbon Energy Technologies

- *Global trends in low carbon energy & Impact on Advanced Materials*
- *Proposed actions for further manufacturing of Advanced Materials in EU*
- *The EMERIT Industry-Driven Initiative & The role of open innovation*

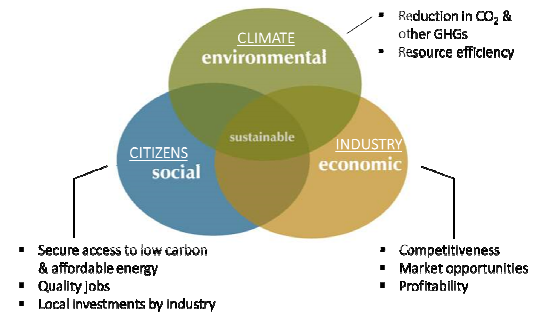
Global industry is changing faster than ever before. We are already witnessing profound shifts across all industries in other world regions. **EU is at a crossroads - It will either catch up with other regions and embrace these changes, or spiral down**, losing its industrial competitiveness, losing “earning power” to safeguard living standards, accumulating job losses and experiencing social instability.

Regarding energy, President Juncker wants an Energy Union delivering secure, affordable and sustainable energy. **It is expected by International Energy Agency (IEA) that power sector contributes the most to CO<sub>2</sub> reductions** (more than industry, transport, buildings sectors) mostly **through renewables & energy storage**.

The adoption and deployment of these low carbon technologies (LCE) require that costs keep decreasing. The cost of these technologies depending namely on the Advanced Materials (non-ferrous metals, steel, alloys, glass, ceramics, plastics, composites), **innovation in Advanced Materials is crucially needed to increase their performance, reduce their cost and extend their lifetime**.

Strong development of these **LCE technologies (energy performance in buildings, energy capture & storage, decarbonization)** represents an important opportunity for **EU-based industry of Advanced Materials**. EMIRI estimates this EU-based industry today at 30 billion euro yearly revenues, over 500.000 direct & indirect jobs (close to 50% of total EU-based jobs in renewable energy) and close to 3 billion euro of yearly investment in R&D and capital expenditures.

**A policy for re-industrialization of Europe in LCE should aim at balancing the 3 dimensions of sustainability**

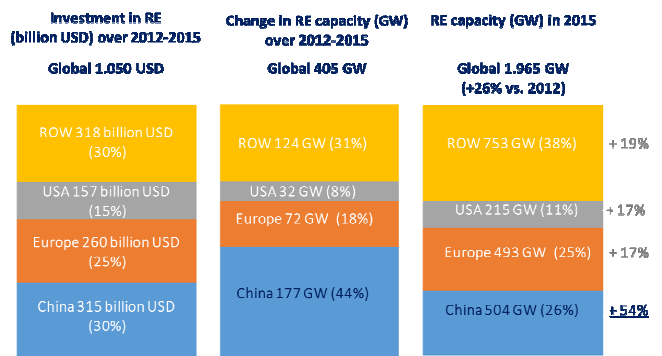


**Global trends are significantly impacting our industry of Advanced Materials for LCE technologies:**

- 1 **Developing countries invest more than developed countries in the deployment of LCE technologies and appear as the key markets** (China is global leader investing 2.5 times more than Europe in renewable energy with an installed capacity at 26% of world total)
- 2 **Manufacturing of devices and components used in LCE technologies is moving to growing markets leading to new industrial champions and European dependency on imported technologies** (1<sup>st</sup> wind turbine & photovoltaic cell suppliers are Chinese)
- 3 **Europe is losing leadership in R&D investment and innovation eco-systems develop outside Europe** (China and Europe spend each \$2.8 billion but spending in Europe fell 8% compared to 2014 (government spending down 18%) while it rose 4% in China)

These trends strongly impact job creation in EU in LCE technologies. Losing ground, EU becomes LCE technology importer representing less than 15% of jobs in the sector (1.17 million jobs in EU according to IRENA) while China accounts for 44% of total.

**RE capacity is developing much faster in China than anywhere else in the world**



EU-based industry of Advanced Materials is strongly anchored in EU and serving global markets but **to maintain leadership, develop manufacturing presence and innovation power in EU, we recommend that EU and Member States:**

- 1 **Stimulate, in frame of Energy Union, a stronger growth of European market for LCE technologies ...** Otherwise the Europe-based sector of advanced materials will not develop local manufacturing presence if growing markets are outside Europe
- 2 **Focus innovation support on fewer priorities in line with business realities so that industry can develop competitive innovation-driven products ...** Otherwise manufacturing could still happen in Europe but based on innovation from elsewhere
- 3 **Create a business-friendly environment so that manufacturing in Europe comes at a benefit ...** Otherwise the European markets could become steadily served from outside



**On innovation, EMIRI worked with EU DG R&I to create the EMERIT Industry-Driven Initiative whose priorities align with actions of Integrated SET Plan and industry orientations ... Aim is to accelerate innovation !**



**Provided appropriate policies are in place** regarding innovation, manufacturing and market development for LCE techs, **European society will benefit from presence of a competitive EU-based industry of Advanced Materials safeguarding investments, generating growth and employment, and creating strong innovation ecosystems.** By 2025, annual revenues of sector could reach past 40 billion euro, generating 300.000 additional jobs (65.000 direct jobs including 3.000 in R&D).