INDTECH2018

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PILLAR 1

Session 1.2

Teaming up for clean energy & clean mobility technology leadership in Europe

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EMIRI – Energy Materials Industrial Research Initiative

30 October 2018

EMIRI
Bridging the Innovation Gap

FFG Promoting Innovation.
Federal Ministry Republic of Austria Transport, Innovation and Technology
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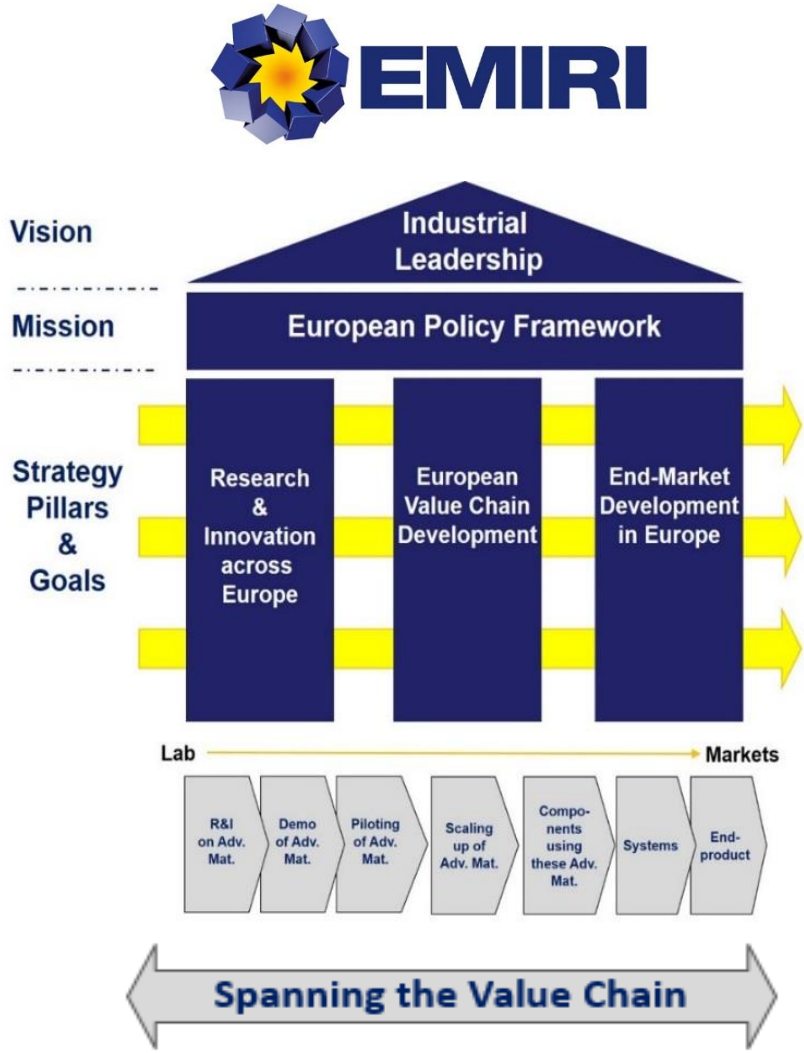
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 767162.

EMIRI works for the future of Advanced Materials for low carbon energy (LCE) and clean mobility technologies in Europe

- EMIRI is an **industry-driven grouping** of over **50 organizations** (established in 2012)
  - With a balance of industry players, research organizations, associations
  - Across Europe & across Energy and Mobility Technologies,
- Aiming to be a key player in shaping & implementing a **EU policy for Advanced Materials**
- To promote a strong and vibrant EU-based sector of **Advanced Materials for low carbon energy & clean mobility Technologies & restore Industrial Leadership**
- Inspired by the **SET Plan** & supporting **Energy Union**
- Focusing on **innovating & bringing to market** Advanced Materials solutions to contribute to tackling Energy, Mobility & Economic challenges of EU



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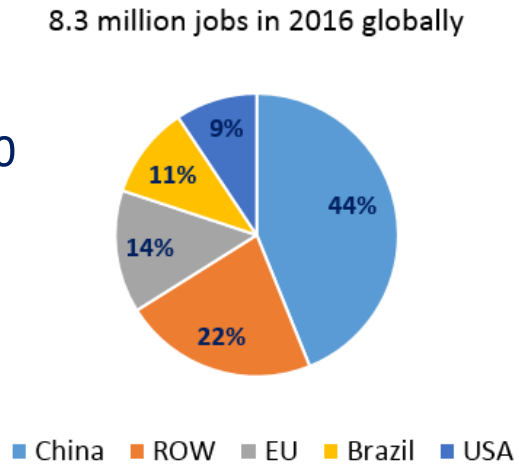
EU is losing leadership in clean energy techs* leading to deindustrialization and job destruction

- Deindustrialization in EU of clean energy value chains is well underway and should be tackled by public and private sectors (**EU lost a net 100.000 jobs over the 2013-2016 period**)
- Without the presence in EU of a strong and globally exporting advanced materials industry, the job loss would have been worse
- **Advanced materials industry created 40-50.000 jobs over that period while the downstream part of the clean energy value chains lost 140-150.000 jobs**
- At the same time, a net 150.000 jobs were created in USA and about 1 million in China
- **If trend persists without EU action, EU will pass below 1.000.000 jobs in clean energy by 2020**
- And its share of globally-existing clean energy jobs would drop to below 10% by 2020
- By 2020, China would represent > 50% of all jobs in clean energy (at ~ 5.6 million jobs) and USA would overtake EU



• Techs stand for Technologies
** Calculations based on figures from IRENA, REN21, EMIRI

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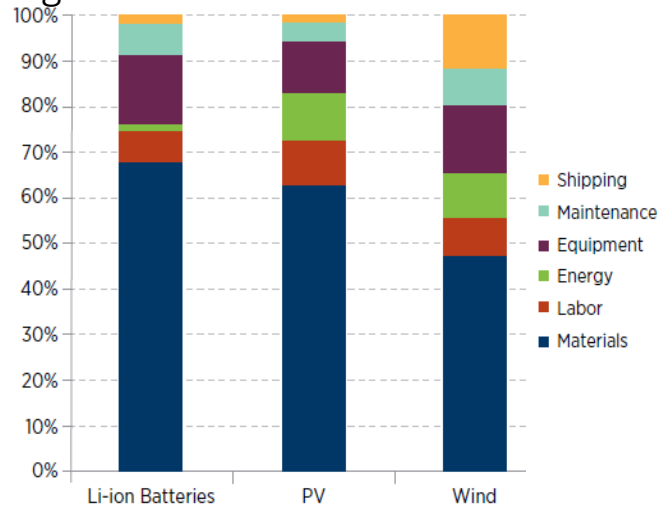
A strong EU-based advanced materials industry is key to reindustrialize EU in clean energy & clean mobility techs

- Advanced materials industry is central to tackling deindustrialization of EU in clean energy value chains while building the clean mobility value chains as well
- EU-based industry of advanced materials for clean energy techs represents more than 30 billion euro yearly revenues, 10 percent is reinvested in R&D and production capacities
- Our industry employs 500,000 people (direct & indirect) which is half of all European jobs in clean energy value chains and created about 40 - 50,000 jobs in the period 2013 – 2016 to serve European market as well as global markets
- Advanced materials represent more than 50% of cost structures of these techs and accelerated innovation in advanced materials is key to accelerate innovation in clean energy & clean mobility
- In near future, global trends will impact manufacturing cost structures of clean energy & clean mobility techs (bringing share of advanced materials in cost above 80% and squeezing out labor and energy costs) and enable manufacturing of clean energy & clean mobility techs in EU to serve EU market ("made in EU for EU")



* Extracted from US DOE's CEMAC reports

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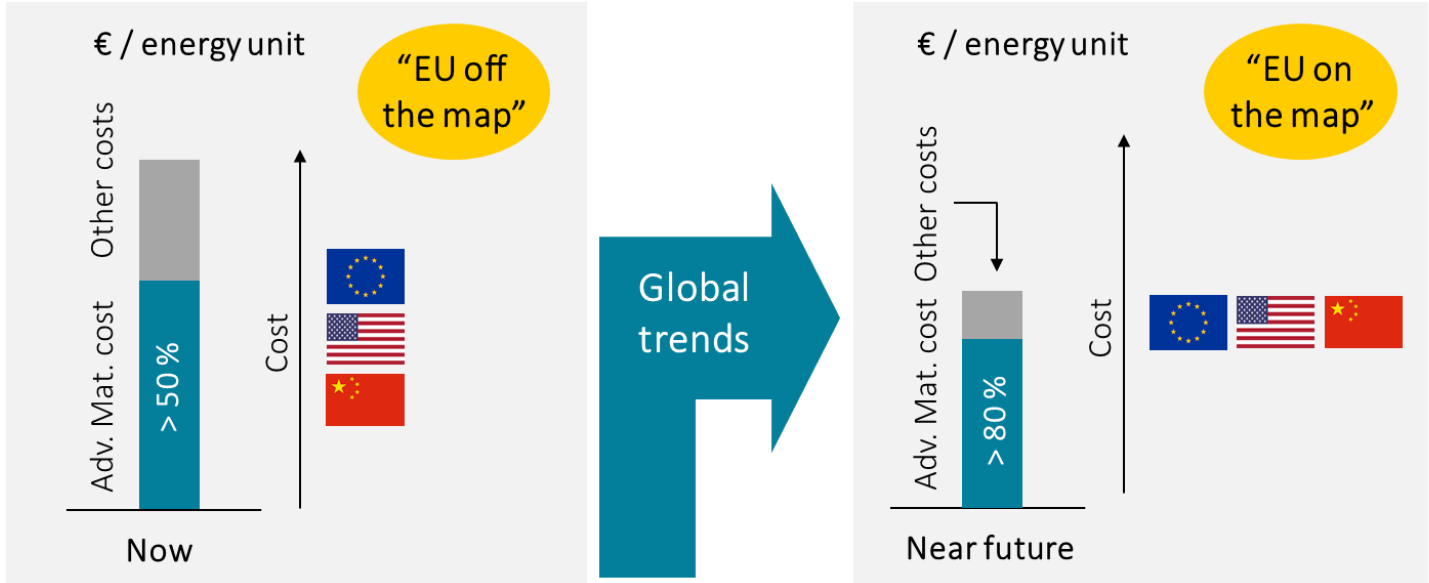
Global trends will impact manufacturing cost of clean energy & clean mobility techs making it possible to manufacture in EU to serve EU market



1. East Asia's shrinking cost advantage (Eastern Europe on the manufacturing map)
2. Advances in manufacturing technology (Industry 4.0) reducing labour & energy costs
3. More performant clean energy & clean mobility techs (leads to higher share of advanced materials in cost structure)
4. Congested maritime shipping routes and increase in shipping costs and risks

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How will EU benefit from these trends?
How can we leverage FP9 to accelerate the shift?

- In "EU on the map", we see decreased cost of clean energy & clean mobility techs, squeezed out labour and energy costs and increased share of Advanced Materials in new cost structures
- Advantage of "made in China for EU" built on low labor costs, lower bill of materials and scale is then much less present in the benefit of "made in EU for EU" thereby restoring presence in EU of an industry manufacturing clean energy & clean mobility techs for EU market
- New decreased cost structures also accelerate the EU market development as well as increase the EU market size for clean energy & clean mobility techs manufactured by European industry
- Presence and development in EU of manufacturing of clean energy & clean mobility techs benefits from a strong EU-based industry of advanced materials which benefits in return from a "close-to-home" customer basis while continuing to develop as well through global exports
- With new cost structures depending strongly on cost (per energy unit and over lifetime) of the advanced materials used in clean energy & clean mobility techs, competition is on using the best advanced materials (effectiveness lever) & using them the best way (efficiency lever)
- Innovation in advanced materials is then to be accelerated in FP9 through strong & focused support of EU funding to share risk with industry and create strong impact in EU-based relevant value chains

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Innovation support is needed more than ever to preserve European technology leadership & develop the manufacturing basis

"realistic funding"

More resources need to be allocated to clean energy & clean mobility technologies (compared to support for fossil fuels and nuclear)

- Funding of R&I on advanced materials for clean energy & clean mobility technologies should show a step change in FP9

+

"effective funding"

Public authorities need to make better choices aligned with industry priorities

- R&I efforts addressing a same challenge (e.g. battery-enabled mobility) should be better coordinated with a more transparent and open governance (not fragmented across various EU Commission silos and work programmes)
- And industry should be more involved in the decision-making process

+

"efficient funding"

Development of better R&I tools & methodologies needs to be promoted

- Towards a "portfolio" approach rather than a long compilation of "projects"
- Clear KPIs to guide innovation
- Stage gating project management

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