

**Three birds, one stone?  
China's low-carbon transition as  
a catalyst for economic  
transformation, environmental  
sustainability, and social  
stability**

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*26 January 2017*

# Shift in China's "strategic industries"

<b>11<sup>th</sup> Five Year Plan (2006-2010)</b>	<b>12th Five Year Plan (2011-2015)</b>
National defense	<b>Energy saving and environmental protection</b>
Telecommunications	<b>Next generation information technology</b>
Electricity	<b>Biotechnology</b>
Oil	<b>High-end manufacturing (e.g. aeronautics, high-speed rail)</b>
Coal	<b>New energy (nuclear, solar, wind, biomass)</b>
Airlines	<b>New materials (special and high performance composites)</b>
Marine shipping	<b>Clean energy vehicles (PHEVs and electric cars)</b>

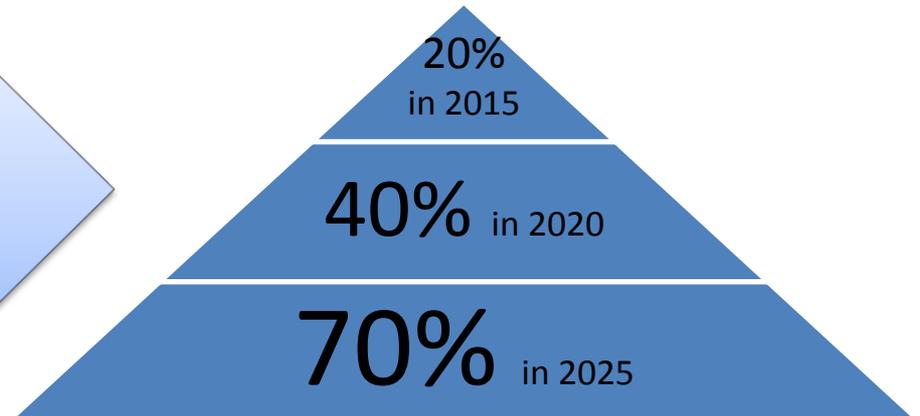
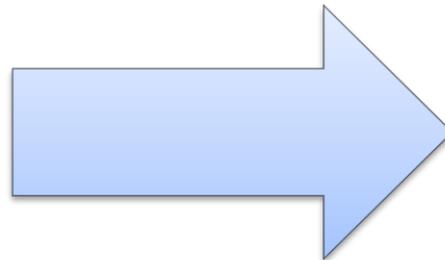


# Made in China 2025

## Ten key sectors

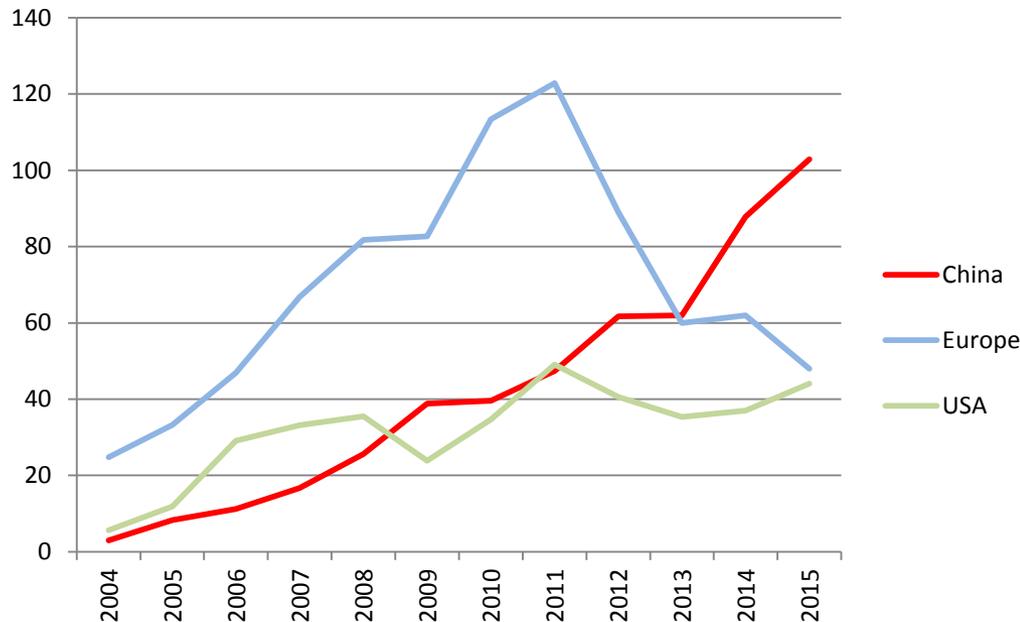
New information technology	Energy saving and new energy vehicles
Numerical control tools and robotics	Power equipment
Aerospace equipment	New materials
Ocean engineering equipment and high-tech ships	Biological medicine and medical devices
Railway equipment	Agricultural machinery

The plan seeks to **increase the added value produced in China** by raising levels of domestic content for core components and materials in ten key sectors:



# China's "Clean Energy Revolution"

Renewable energy investment in billion USD



## Sources of industrial competitiveness and national power (Mathews & Tan, 2015):

19th Century – coal (UK, Germany...)

20th Century – oil (US)

21st Century – low-carbon tech? (China?)

## Key energy goals to 2020:

- **Increase non-fossil fuel** energy from 10% to 15% of energy mix
- **Invest** additional \$361 billion in renewable energy
- **Add ~10 million jobs** in renewable energy (from 3.5 million in 2015 to 13 million in 2020).
- Reduce CO<sub>2</sub> emissions per unit GDP by 18% from 2015
- **Reduce coal** from 62% to 58% of total energy mix

# Challenges from a European perspective

## Remaining challenges for China include:

- Social, economic and political complications of transitioning from coal;
- Issues of curtailment of wind and solar, declining efficiency of hydro, combined with overcapacities in power sector;
- Implications of potential trade war with US – importance of trade and international markets to access technology and grow low-carbon industry in China.

## Some benefits of China's low-carbon transition:

- Local, regional and global impact of reduced strain on the environment from China
- Importance of a more proactive China at international level (e.g. COP21)
- Potential for technological breakthroughs (e.g. Thorium-based molten salt reactor for nuclear energy)

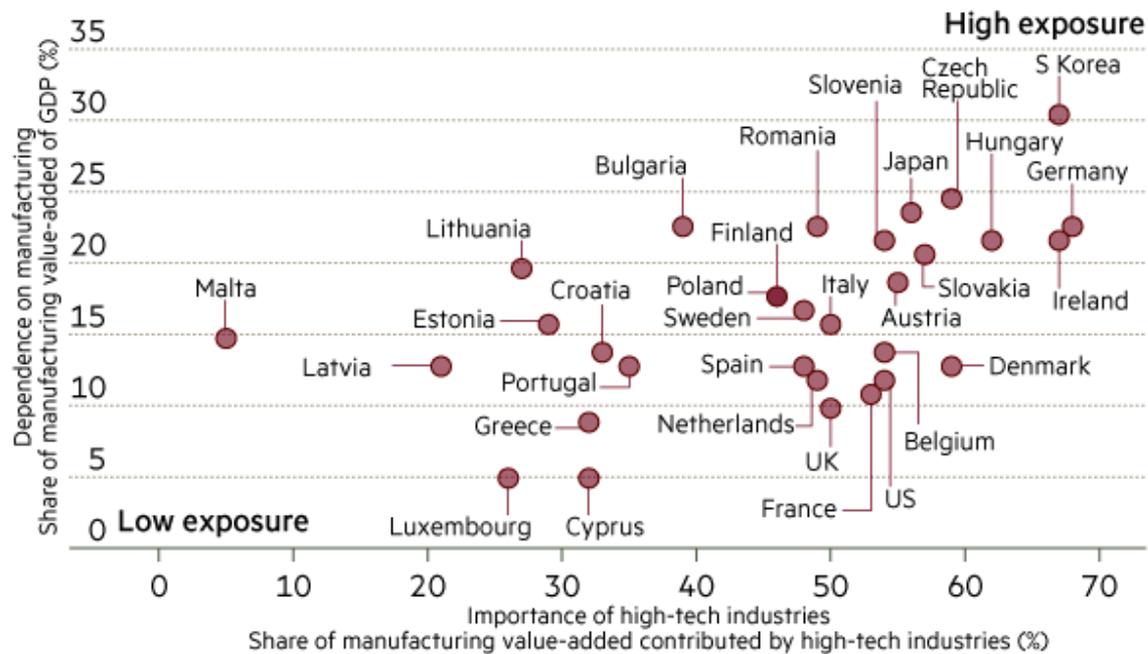
## Challenges for Europe today include:

- **Trade frictions:**
  - New form of resource nationalism (ex. technology metals);
  - Market access and technology transfer (ex. batteries);
  - Anti-dumping (ex. solar panels)
- **Investment and technology licensing:**
  - How to deal with Chinese state-financed foreign investment in tech sector?

# Growing competition for high-tech manufacturing

## Under Pressure: Industrialised countries will feel the heat of Made in China 2025

Vulnerability of select industrial countries to Made in China 2025



Data are five-year averages of most recent available data  
Source: MERICS

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