

Europe's Low Carbon Industries: A Health Check Summary

EY's analysis entitled "*Europe's Low Carbon Industries: A Health Check*", addresses the EU's state of progress, in terms of innovation and market development, for a selection of key low-carbon industries: solar PV, wind energy, biofuels, alternative vehicles, smart grids, and energy storage.

Along with other high-tech industries, low-carbon industries will be among the main economic game changers in the coming decades. Some low-carbon industries, despite only being in relatively early commercialisation stages, already show sizeable workforces in the EU: 220,000 jobs for solar PV, 270,000 for wind energy, 110,000 for biofuels. Market forecasts reviewed in EY's analysis expect global market size for each of the six industries to top USD 100 billion around the turn of the decade, provided key success factors are gathered, especially regarding their capital investment needs.

Three key lessons can be drawn from early experiences in low-carbon industries. First, successful take-off hinges on political direction and support. The EU accounted for over 40% of global renewable energy investments until 2011, driven by political support such as feed-in tariffs and national targets. The recent rise of the US and China are similarly explained by strong political direction. Such lessons should inspire the take-off of emerging industries such as energy storage and smart grids.

Second, credible and stable policy direction remains a critical factor for low carbon industries even at a more mature stage. Strong investment declines due to political uncertainty have been observed in the cases of solar PV and wind energy, where concerns about future policy support in the EU and the US have delayed investment decisions since 2011. In the meantime China has sustained its investment efforts and is now the world's top investor in renewable energy.

Third, smart stimulus packages can spur growth of a sector throughout. For instance, packages which have boosted investments in renewable energy include the American Recovery and Reinvestment Act in the US (2011), Japan's Renewable Excess Electricity Purchasing Scheme for Photovoltaic Electricity (2009), and China's successive five-year plans since 2006.

The EU's competitive advantage has historically been in R&D and innovation, efficient production processes and a skilled and productive workforce. Regarding solar PV, the EU has lost much of its domestic PV module manufacturing base to Asia. However, opportunities remain in other PV products and services; Europe's PV industry still creates 73% of the total value of the European PV market. Regarding the wind industry, the EU's opportunity for onshore wind has been demonstrated by high net exports (€ 5.6 billion in 2010) and employment. Similarly for offshore wind, Europe is positioning itself as a leader in innovation and market take-off.

Conversely, in industries where Europe has been less active, the window of opportunity remains open:

- ▶ Regarding biofuels, after backing away from the conventional biofuels race, the EU, along with the US, is leading the R&D and demonstration effort in advanced biofuels, and is well positioned to tap into future market potential.
- ▶ Alternative vehicles remain a niche market in Europe, in contrast to Japan and the US. Domestic market development however remains in the early stage in these countries. Europe can rely on solid industrial foundations for contributing towards innovation and market development in the future global transport landscape.
- ▶ The European energy storage market is still in an emerging phase and the race is opened on all segments. Europe is already well positioned on lead-based batteries (with a workforce of 25,000 workers) and integration equipment.
- ▶ Regarding the smart grids sector, while it seems that Europe's investments are less extensive than those mobilised in the US and China, the industry remains in its early stages, and future success would

start with development of the domestic market.

As new players enter the markets, Europe's windows of opportunity are narrowing. Long-term targets to create an attractive investment climate, and targeted policy to allow European businesses to foster their positioning along value chains thus become crucial. This would need to be complemented with an industrial strategy, stimulus packages and technological integration policies for low-carbon solutions where the EU has a strong role to play.