NanoAlb - WEBINAR

Nanotechnology and Energy transition

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Transition to decarbonised energy systems is becoming more attractive with fall of investment costs of variable renewables as well as volatile prices and political insecurity of fossil fuels. With the current situation it is becoming urgent. The renewable energy resources are bountiful, especially wind and solar, while integrating them into current energy systems is proving to be a challenge. The limit of cheap and easy integration for wind is 20% of yearly electricity generation, while a combined wind and solar may reach 30%. Going any further asks for implementation of really free energy markets (involving day ahead, intraday and various reserve and ancillary services markets), demand response, coupling of wholesale and retail energy prices, and it involves integration between electricity, heating and cooling, water and transport systems. Electrification of transport and heating will help demand response and thus integration of variable renewables. Long distance transport and high temperature industrial processes will need hydrogen or hydrogen-based fuels. Batteries will become ubiquitous. These changes will need new materials, and nanotechnology is well positioned to help in photovoltaics and wind energy conversion, batteries, fuels cells, buildings materials.

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