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Challenges of Energy Transition

Philippe A. Tanguy

Total Deutschland, 2 Jean-Monnet Str., 10557 Berlin, Germany

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The energy transition is the shift to transform the present energy system mainly based on depleting commodities into a more sustainable mix by means of the use of renewable energy sources, an increase of the energy efficiency, energy sobriety and greenhouse gas mitigation measures. In our daily life, energy is present under three main forms: electricity for lighting, heating and powering appliances; fuels for mobility and large industrial equipment; and molecules for the ubiquitous chemical compounds making our modern life possible. The development of technological innovation in these fields is central to the success of the energy paradigm shift. However, depending on the energy applications considered, the degree of technological maturity varies significantly, as well as the capacity for practical deployment. The energy transition trajectory is country-specific as it depends on the local available resources, the system in place (energy mix, infrastructure, typology of consumption) and the societal context. Clearly, to embark on this journey, there is not a single approach or a universal model that can be readily applied. A solution is devised in each case with long-term objectives, and financial scenarios. The presentation will provide a comparison of the strategy followed by several leading countries to make their energy system more sustainable and a glimpse of some key challenges to address in order to make the energy transition a success.

Keywords: energy transition, efficiency, scenarios