

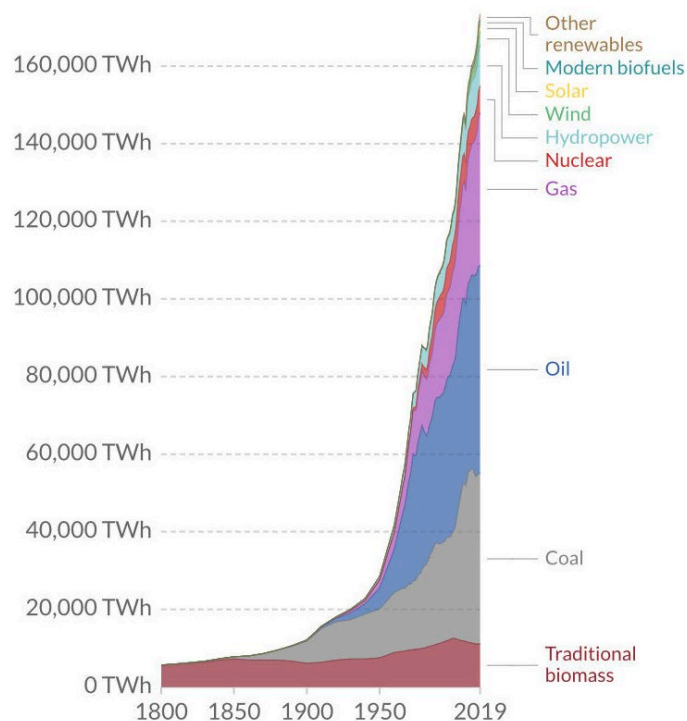
Stabilization of Energy Prices and Supply/Demand Balance During the Transition Period to Carbon Neutrality

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Decarbonization is the main driver of energy transition globally. Addressing climate change requires that emissions peak during this decade, followed by a rapid reduction in fossil fuel consumption. The latter is driven by the falling cost of renewable power generation, and policies that aim to tackle urban air pollution, improve energy efficiency, and accelerate decarbonization.

The laws of economics suggest that in the long term, the development of green technologies and the energy transition should reduce the demand for fossil fuels, or at least stabilize it - as it was happening during the previous energy transitions from wooden biomass to coal, from coal to oil, etc. (see Fig. 1). Accordingly, this demand destruction (or stabilization) should lead to a decrease of the fossil fuel prices. Sounds reasonable in the long run, as a destination, but achieving this long-term goal might be accompanied by serious shocks for the world energy system.

Fig. 1 Two Centuries of Global Primary Energy Consumption



Sources: Vaclav Smil (2017), BP Statistical Review of World Energy, OurWorldinData.org/energy

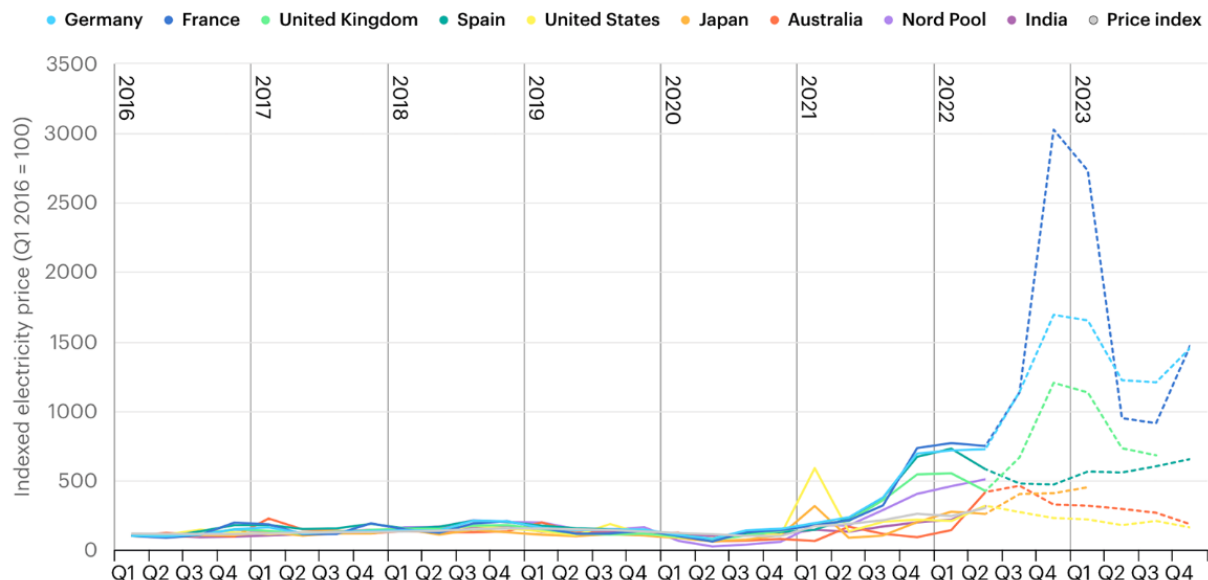
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The most important question for the entire transition period is how to ensure that it will go smoothly and will not lead to a significant imbalance between supply and demand in the market and to sharp price spikes? How manageable will this development be and what volatility will the markets face in the process of transition?

Energy transition is a nonlinear, difficult to predict process that can face many challenges. Will the technologies and materials needed for the green technologies scaling up be available in all regions of the world, or will we witness new global and regional shortages (for example, deficit of rare earth metals)? Will the investments required for the large-scale implementation of renewable energy be available at the same time as the investments needed to sustain operations of the fossil fuel industries, which are anyway required at certain volumes until the transition is over? Will the regulators and the businesses be smart enough to ensure proper institutional framework and proper strategies to be able to cope with the climate change in a timely manner or would the transition be further weighed down by the climate damage factors and related economic losses? And of course, how will the current geopolitical realities affect the situation?

So far, unfortunately, it can be stated that the answers to most of these questions are negative. The existing technological, regulatory, commercial, and geopolitical conditions can hardly be called favorable for a quick and smooth global energy transition. And, as practical evidence, despite visible growth of the RES share in the energy balances of many countries, during the last few years volatility of the energy prices was reaching record heights (see Fig. 2).

Fig. 2 Quarterly Average Wholesale Prices and Futures Prices Estimates for Selected Regions, 2016-2023



Source: IEA Electricity Market Report – July 2022. <https://www.iea.org/reports/electricity-market-report-july-2022>

Does it mean that the economic laws are not working? Not at all: the main reason for the price rise is a noticeable underinvestment in hydrocarbon production in recent years, a reduction in the supply of oil and gas due to the introduction of tough sanctions against Russia, the resulting temporary shortage of fossil fuels and the associated speculative expectations.

Is it possible to guarantee that after the stabilization of the geopolitical situation and the time lag necessary for the commissioning of the missing hydrocarbon production capacities, the situation will normalize? Also not, unfortunately: the global energy system is currently too destabilized, and the almost inevitable further reduction in the supply of Russian energy resources in the coming years will aggravate the situation, so further price jumps are highly likely. The imbalances caused by the post-Covid recovery, and other “black swans” should not be ruled out: the world has entered a period of high economic and political instability. Moreover, the problems may concern not only Russia, but also other hydrocarbon-exporting countries. Many hydrocarbon-rich countries face an energy paradox: investment in green growth requires financial resources that can only really be earned by the export of hydrocarbons. But once again, these revenues are threatened by the energy transition.

At the same time, the global community has no other choice: the urgency of the climate challenge simply leaves no other opportunity than to accelerate the energy transition, even if it is accompanied by price jumps and other problems. The existential challenge now facing humanity requires swift and decisive action on the part of all stakeholders.

With a favorable combination of circumstances, it is quite possible that energy prices will normalize already before 2030, but negative price scenarios cannot be completely ruled out. However, these price risks are not comparable to climate risks and can be considered as “acceptable damage”. Of course, the most important task for epy governments is to minimize these risks through regulatory measures. However, this is a real challenge of finding the right balance between market interventions and their ability to self-regulate. Perhaps there will be mistakes and failures on this path, but, anyway, humankind has no other way forward than accelerating energy transition.

Writer's Profile

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Dr. Mitrova has twenty five years of experience in dealing with Russian, FSU and global energy markets, including production, transportation, demand, energy policy, pricing and market restructuring. From February 2017 to December 2020, she was the Executive Director of the Energy Centre of the Moscow School of Management SKOLKOVO, a graduate business-school. From 2006-2011 she has also been the Head of Research in the Oil and Gas Department in the Energy Research Institute of the Russian Academy of Sciences. She is a graduate of Moscow State University's Economics Department. She is a Visiting Professor at the Institut d'Etudes Politiques de Paris (Sciences Po). She is a member of the board of directors of the global oil service company Schlumberger since July 2018. She has more than 200 publications in scientific and business journals and co-authors 10 scientific books as well as best-seller “The 8 and 1/2 Steps: How to Live, Love And Work At Full Capacity” (stories of women leaders).