Geopolitical Considerations of the Global Energy Transition to Renewable Energies

Today, we are in the midst of one of the most significant global transitions in energy systems. Although fossil fuels are likely to dominate the global economy for the next several decades, the share of renewable energy, especially in decentralized electricity generation, is gradually increasing everywhere. Countries around the globe, to varying degrees, are trying to use more domestic renewable energy sources and increase their energy efficiency. In the past, similar energy transitions occurred from wood to coal and coal to oil and gas, but this time the fossil fuel-dominated energy system, which started during the Industrial Revolution, will be replaced with a more sustainable one.

Our experiences have shown that none of the previous transitions occurred without upheaval. They constituted major economic and sociological changes and generally occurred during periods of rising geopolitical tensions. These characteristics are similar in today's transition towards renewable energy, creating unique problems in major energy consuming-countries and hydrocarbon-exporting countries alike. Two questions arise in this context. How will renewable energy reshape global geopolitics in the coming decades? Will the geopolitics of renewable energy be similar or different compared to the traditional geopolitics of fossil fuels?

The rise of geopolitical competition among the powers over fossil fuels has already reversed important trend in the global energy mix. Powers are increasing trying to solve their energy-security problems with domestic assets, human resources, technology, and other creative ways. Path dependency also becomes important. Among the powers, the energy paths of China and Russia are diverging considerably from those of the United States and European Union.

In our new, current era, much will depend upon how much countries invest in research and production of renewable energy technologies, their access to several rare earth minerals, which are needed to power these technologies, and their respective potential to generate renewable energy within their borders.

The major dynamics of the new geopolitics will be shaped mostly by the evolution of international system. The breakup of the Soviet Union transformed the international system from a bipolar structure to a unipolar with the hegemony of the United States.

However, since the global financial crisis of 2008, power has grown steadily more diffuse, and the international system is defined by multi polarity. Some experts tweak this view, arguing that the international system is "duo-multipolar": power is shared almost equally among different regions while the United States and the People's Republic of China play pivotal roles. If we agree with the assumption, that fossil fuels have begun their gradual decline, we must question whether this duo-multipolar system will transform again into a genuine multipolar one.