TRUE LIBERATION FROM FUEL DEPENDENCE. THE IMPORTANCE OF THE DEVELOPMENT OF RENEWABLES

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Energy is a universal resource that civilization needs more and more every day.

No modernized process would be possible without electricity. Humanity needs warmth, safe working conditions, and strives for productive work. Annually, the average consumption of electricity per capita is growing significantly. Every particle of the universe is permeated with energy. Today, we can generate energy out of thin air. The extraction of fossil fuels has given us extraordinarily rapid access to vast volumes of this irreplaceable resource. But it also took away some of our freedom, putting a monopoly on what is everywhere in the hands of those who are not too concerned about the future of others. Moreover, paradoxically, it is precisely because of this “great opportunity” of fossil fuels that some countries are declining. There is no need in the development of a nation when you can sell the earth’s resources and ensure your comfort. There is no need for democracy if power and wealth are already in your hands. This is not only about solutions and the economy. It is also about natural and sustainable living, without craps and conscience deal. It is necessary to realize the real impact of non-renewable energy on our lives. Draw cause-and-effect relationships with much longer links. Analyse the problem more deeply and remember the price of today’s compromises.

Fortunately, developed countries have made significant progress in the development of renewable energy in recent years. Nevertheless, these steps are not enough for a comfortable future. It is generally accepted that certain innovative green solutions are currently too expensive to implement. Another though is that the population cannot afford a sudden transition from coal to solar batteries or from gas to hydrogen, for example. However, it is worth facing the truth. Each of us pays an emission tax every day. We pay with our lungs, our medical bills, and even our lives when someone has power and control over energy flows to billions of people. Decentralization of energy systems and generation of renewable energy is not a luxury – it is a necessity.

Existing solutions and research reflect that humanity can fully provide for itself without further depletion of natural resources. World organizations do not ask the main question of opportunity, but time and price. However, planning for tens or hundreds of years is too optimistic. The modern resource allocation system may not

leave us much time to implement solutions. We need them today. If ten years ago advanced states were as focused on this goal as they were on the development of the military sphere, perhaps today we would be facing completely another challenges. But in reality, almost every country is still dependent not only on natural circumstances and internal factors but also on external crises, on the crises of other countries. Instead of having productive multinational cooperation, we are forced to limit ourselves to transnational races for resources. That, in turn, reduces the overall development productivity of absolutely every country and person.

Today, in times of powerful development of the electric power industry, the world consumes more wood and charcoal than ever before. In 2022, global coal-fired power generation exceeded the all-time high of 2013 (Belousova, 2022). World coal consumption reached 8 billion tons per year. At the same time, in 2022, the share of renewable energy reached a record 12% (Chepur, 2023).

Total primary energy supply per capita increased from 1.65 to 1.82 tons of oil only from 2000 to 2008, which is more than 10 (OECD 2010).

Global emissions of CO2 from the combustion of minerals increased from 534Mt in 1900 to 9.15 Gt in 2010 (Smil, 2017).

The energy value of products of animal origin is 4 times lower than the food fed to animals, and overeating also leads to additional energy and financial costs due to the deterioration of health. Therefore, approaching the issue comprehensively, one should not forget about regulating the consumption not of only electricity, but also other spheres of life.

It is also necessary to improve people's awareness of the energy efficiency of premises.

However, in one way or another, human needs for energy are constantly increasing. The relentless growth of energy needs is a well-known fact, but none of us can predict how this growth will be reconciled with a world of economic inequality and environmental problems. (Smil, 2017) And here renewable sources should work to help us. And in this, too, it is necessary to apply a comprehensive approach. Combining the development and use of solar energy, wind energy, hydroelectric

power plants, geothermal energy, the creation of new, more energy-intensive and with reduced storage losses, batteries, and the development of hydrogen infrastructure. The latter is also due to the still partial unreliability of electricity supply and the need to ensure continuous access to energy for critical infrastructures.

The effectiveness of such work can be increased by the open exchange of developments between countries and the joint refinement of technologies. In turn, it should be supported by states both politically and financially.

Based on this, in my opinion, one of the main tasks of today is to unite over the urgent introduction of renewable energy as a source of energy freedom available to everyone. Exchange of research and experience in this area, recalculation of real efficiency losses on existing sources, and enhanced cooperation in the development of new energy infrastructures should become a priority.

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