DETERMINANTS OF ENERGY CONSUMPTION & FUEL BASE SAFETY

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Purpose. On the base of studying the current situation in the world mining and fuel consumption author make the prognosis of the country's economic development and involving new conception of mine operation.

Methodology. The studies were carried out through the justification of the current mining operating as a "smart operation" including wastes utilization technologies with the aim of supporting cheap fuel and energetic issues for economy.

Findings. Investigation presents one of the most important factors determining the development of our civilization, which is energy and its scale of consumption - today and in the perspective of several decades. The average energy consumption per capita of the land is constantly increasing and since the beginning of civilization development in some countries has increased over ... 1000 times. The dominant sources of energy are fossil fuels: coal, oil and natural gas. Great anxiety arises from the fact that they are quickly depleted and that they are non-renewable and ... sometime they will end. In 2014, their share was crucial for the energy balance in the world and amounted to 86%, while the share of coal was 30%, natural gas - 24%, crude oil - 32%. The key determinants of their consumption are: the increase of the world's population, economic progress, which has become the true religion of our time and climate change, which the world has been concerned about for several years.

The growth of the world's population is progressing at a rapid pace, while the number of inhabitants of the Earth was waiting for 1,800 years to reach the first billion, and for the next over 100 years, the last and the last billions require a dozen or some years. The climate is changing what we feel all the inhabitants of the earth. Recent years have been the warmest since the beginning of measurements, since 1850. The report presents the largest energy consumers in the world, and the consuming the most fossil fuels countries such as the USA and China. What is the sufficiency of fossil resources then? What kind of policy should the world adopt to implement the principle of sustainable development, the growth of economic progress that does not violate the condition of the natural environment and socially accepted in the name of caring for present and future generations?

The article responds to these questions very generally indicating the directions of action such as technical and technological progress and changes in the approach to energy consumption, i.e. limiting the increase in energy efficiency treated especially by David Yergin (The Quest - in search of energy - about energy, security and defining the world anew, ed. Polish Kurhaus Publishing, 2013, american edition 2012), winner of the Pulitzer Prize, one of the largest enthusiasts, experts in the global energy industry, who calls energy efficiency the "fifth fuel".

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SOBER ASSESSMENT OF ECONOMIC FEASIBILITY OF RENEWABLE ENERGY AND VEHICLE-TO-GRID TECHNOLOGIES IN UKRAINE

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Purpose. Estimate economical rationale of vehicle-to-grid technology (V2G) in Ukraine in with and without renewable energy systems.

Methodology. Open sources, market research and economical assessments regarding the prices of renewables, electric vehicles and charging infrastructure were used to forecast further situation with green technologies in Ukraine.

Findings. Ukraine undergoes transition from heavily-industrialized post-Soviet republic into a unique combination of agricultural plus high-technology country. As a heritage it has excessive electric power utilities, which generating capacity exceed actual demand [1]. As a result, the tariff for electricity in Ukraine is one of the cheapest in the world, 1 kWh costs roughly 0.06 EUR. Thus, renewable energy sources cannot compete on the open market without government incentives. The later became viable just recently and caused a surge of installation of photovoltaic stations in Ukraine. The number and total capacity of PV stations doubled during 2018 [2,3]. Similar situation is with electric vehicles (EVs) – because of cheap electricity, the number of EVs grows rapidly, far outnumbering the capacity of charging infrastructure [4].

EVs are called 'green vehicles', somewhat delusively, because the primary energy comes from burning fossil fuels. Meanwhile, there is a problem with uneven generation of renewable sources. One of the ways to mitigate the problem of excessive/insufficient generation is the use of EVs as intermediate accumulators of electricity [5,6]. The idea is