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THE ENERGETICS OF ECONOMICS

(Money as access to energy)

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Abstract: Money is being portrayed as temporal access to energy and a new methodical approach to the energetics of the human economy is introduced. The economic evolution of world system energetics is put into the historical focus of all global monetary civilization, reaching back to the Sumerian city states. This long wave energetics of human economic action clearly points to the biophysical boundaries of the monetary production economy which is also based on natural law. The future perspective of a new socio-energetic order is discussed as a cognitive adaptation or learning process, responding to entropic volatility.

Keywords: entropy, energetics, money, ecology, civilizing process, long wave cycles, economic history.

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The social paradox of economic systems is hidden in the temporal interplay and cyclical interaction of objective natural limits and subjective human decisions; every calculative counting, formula or equation is a rationalized accounting method of bio-economical finitude

and the recorded history of economic systems evolution is naturally not the artificial product of the perpetual motion of firms, households and financial intermediation. At every evolutionary standard of technological innovation, the social economy really converts natural resources into human needs by investing energy for an energy return or a net energy gain. However, in a monetary production economy all human needs are simplified, reduced and measured in monetary units, i.e. the advanced market economy is based on monetary exchange as market replicator and information signal for future production and price formation. Therefore, human economic productivity in such a monetary exchange system is built upon the following process functions:

A: Time/quantizes/economic production;

B: Energy/quantizes/time;

C: Money/quantizes/energy.

ABC: Money is=access to= energy and quantizes economic production time; in addition, human resources (skills, knowledge, ingenuity) cannot outperform the natural forces or biophysical laws of economic production that are based on a gross energy input for a net energy output (via optimal temporal gain). Social history documents that progressive monetary exchange has expanded gradually the limits of the natural production economy on a global scale, but it cannot expand the natural limits of the known physical energy resources. It is not an exaggeration to assume that the origin of the wealth of nations is derived from access to energy resources and that the dynamics of entropic processes decides over efficiently maintaining the social order of economic systems. Many competing economic taxonomies and social utopias are implicitly in academic circulation, being only rivaled by smart voiced political ideologies, but the dominant majority of economic models concerning human societies consequently ignore the biophysics or energetics of the modern monetary production economy; this scientific deficit is especially dangerous in our globalized village.

The decisive economic problem of our current monetary system is that money does absolutely not behave neutral or boring to the production cycle; the commercial fiat emission of private credit (x interest) reaches after a certain temporal limit its biophysical or energetic boundaries. Whereas credit (x interest) can be emitted by private banks on the basis of central bank fiat money mathematically (as a political wish coupon), the energetics of the production system is limited physically by natural law (entropy). Consequently, the monetary basis needs an optimal or narrow reserve requirement to speed down human over-consumption of natural economic resources because money means practically access to energy. The next leadership

economy will surely be about solving the money-energy-relationship via a slowdown temporal scale; a novel period of energy use, based on access to comparatively not expensive energy resources, will signify a new systemic leadership position as an economic avant-garde. The long wave perspective in economic history documents that new systemic leadership in energetics never evolves from the supreme political economy, because the most powerful factor of systemic supremacy is the energetics of weaponry. De-central energy provision, energy saving and renewable (clean) energy resources will open the door to this new wave of energetics, in combination with sound monetary reform for temporal sustainability and economic dynamic efficiency. It is this vital interplay of energy, money and time that governs the economic production cycle and provokes human ingenuity to solve a new social problem- generation, i.e. to set new standards in the energetics of the human economy. It is very probable that these process changes in system energetics are traceable back to the historical economics of the first monetary civilization, i.e. the Sumerian city states, and that the whole civilizing process is about energetic systems evolution, guided by monetary prudence or error.

Humankind is a drop out from nature, but economic action cannot outperform the natural boundaries although every human economy is a result of the unnaturalness of the human nature. This is the key of the economic paradox: subjective preferences are limited by the energetic input on a temporal scale for an energetic output (remember the above mentioned ABC). Today, this is a global process as the monetary production economy, based on energetics, is the dominant world system. It is therefore wise to think global economics as world system energetics; advancing human large-scale economic cooperation on this globe will depend on a new energy science that applies economic wisdom (time-tested knowledge) and monetary foresight, leading most probably to a new world currency, based on a clean energy index. This fundamental global energy shift of the world economic system calls for a methodical integration of ecology, energetics and economics, with the monetary system reflecting the natural limits of human economic action as money is actually temporal access to energy.

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