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Naim H. Afgan, Maria G. Carvalho, Nikolai Hovanov

MODELING OF ENERGY SYSTEM SUSTAINABILITY INDEX

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ABSTRACT

Sustainability comprise complex system approach in the evaluation of energy system state. By its definition sustainability include definition of quality merits without compromising among different aspect of system complexity. It is of paramount importance for any energy system as the complex system to quantify elements of complexity taking into a consideration various degree of complexity. Energy conversion process is characterized by the entropy production as the measure of the irreversibility of the processes within the energy system.. So, the complexity element of the energy system reflecting internal parameter interaction can be defined by the entropy production in the system.. Complexity elements of the economic indicators are structured in different levels are intrinsic to the specific levels and are measured in different scale. The economic quality is reflecting the finale energy cost , There are a number of parameters which are of interest to be taken into a consideration in the mathematical model for the determination of the optimized values of required for its evaluation . Mutual interaction between the energy system and its surrounding is immanent for any life support system. As it is known every energy system is taking energy sources from the surrounding and disposing residual to the environment. In the social aspect of the energy system are included risk of environmental changes, health and nuclear hazards and may have to deal with a compounding of complexity at different level.

KEYWORDS

sustainability, complex system, energy system, resource indicator, economic indicator, technological indicator, environment indicator, social indicator, normalization, agglomeration, aritmetization

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