DOI: 10.20472/IAC.2018.038.034

LUKÁŠ REŽNÝ

University of Hradec Králové, Czech Republic

DYNAMICS IN THE EXTENDED NEOCLASSICAL GROWTH MODEL

Abstract:

Presentation deals with the expansion of the Neoclassical model of economic growth with the energy sector. Firstly, the current problems presented by declining quality and limited quantity of the fossil fuels together with the properties of the new renewable energy sources are presented within the framework of EROEI (Energy Returned On Energy Invested). Next, the relationship between economic growth and energy consumption is introduced. Follows a brief description of the used modelling method, system dynamics and its advantages for an extension and analysis of economic models. The main content of this contribution is the description of the proposed expansion of the Neoclassical model of economic growth with the energy sector. The impact of the varied quality of renewable energy sources (EROEI) on the future economic performance is being studied with the use of sensitivity analysis within the proposed model which covers the time period of 1965-2065.

Keywords:

Neoclassical model of economic growth; Energy sector; EROEI; System Dynamics

JEL Classification: O44, Q01, Q40