

عنوان مقاله:

Estimating the Potential of Changes in Oil Price in IPCC Climate Scenarios: A System Dynamics Approach

محل انتشار:

مجله تفکر سیستمی در عمل، دوره 3، شماره 1 (سال: 1403)

تعداد صفحات اصل مقاله: 21

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خلاصه مقاله:

This paper uses the system dynamics approach to model the changes in oil price prospects in the framework of the shared socio-economic pathways (SSP) climate scenarios proposed by the Intergovernmental Panel on Climate Change (IPCC) until 2100. This theoretical structure connects the primary feedback mechanisms: supply, demand, and price. The determining factors of most tremendous significance in the supply sector are the Organisation of Petroleum Exporting Countries (OPEC) and non-OPEC production levels. The production targets set by OPEC are indicative of its market management policies and are significantly influenced by the actions of its key members. The oil price indicates a cyclical relationship with the oil supply of significant players. The determination of global oil demand in the demand section is based on various climate scenarios presented in the IPCC report. The fluctuation of Brent oil prices over time can be linked to the disparity between supply and demand. According to the model outcomes, the price of oil will be projected to decline to 20 per barrel by the year 2100 if the sustainability policies outlined in the SSP1 framework are implemented. However, in the alternative scenarios of SSP2, characterized by regional competition, and SSP3, characterized by heightened inequality and competition, oil prices are anticipated to rise to 100 per barrel. In the context of the SSP5 scenario, which posits a path of economic and social development reliant on the consumption of fossil fuels, the price of oil displays a declining pattern after a period of relatively higher prices. The peak oil prices within the Intergovernmental Panel on Climate Change (IPCC) scenarios exhibit significant variation based on their Representative Concentration Pathways (RCPs).

کلمات کلیدی:

climatic change scenarios, oil demand, oil supply, oil price, OPEC, System dynamics

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