



MODELING THE REGIONAL ENERGY ECONOMY SCENARIOS ACCORDING PROCESS NETWORK SYNTHESIS METHOD

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ABSTRACT

The scarcity or abundance of local energy resources depends on regional geographic conditions, geological structure of land, soil structure, water, forests and other natural resources. The supply of renewable energy resources (RES) and development of RES technologies also depends from economic, social and environment aspects for energy resources extraction and energy production. Usually economic instruments such as criteria of efficient use of investment and operational capital are used for evaluation of energy production technologies in the region. Therefore environmental and social impacts of energy production technologies are considered as negligible factors for influencing the final energy prices. Process synthesis analysis (PNS) method helps to assess the use of energy production technologies through evaluating energy flow in the region from the use of RES, other local energy resources and fossil burning fuel technologies. PNS method is evaluates the economic influence in the region according technological and economic factors of energy production. The method optimizes the delivery and distribution network of energy resources and the final energy according availability, supply and demand of the energy resources and the final energy. In the article energy economic sectors are analyzed in two regions of Lithuania. Energy economy development models in investigated regions are created base on PNS method and the use of RES. Evaluation of regional energy economy systems and the comparative analysis of energy economic models are carried out in investigated regions.

Keywords: renewable energy resources, energy process network synthesis analysis, regional energy economy