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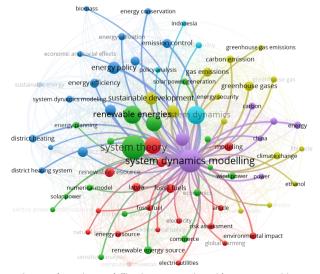
USE OF THE NATIONAL CLIMATE AND ENERGY POLICY SIMULATION TOOL IN THE POLICY MAKING PROCESS

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Abstract - Energy transition towards CO, neutral energy systems is challenging as the national energy policy depends on numerous factors. In system dynamics approach these factors are identified as causal and feedback loops with lock-ins, as a result constituting stock-and-flow structure. Such kind of structure is used in different simulation tools. This study analyses the use of the Latvian national climate and energy policy simulation tool in the policy making process. As a hypothesis of the study was set that the simulation tool, which is based on the principles of systemic thinking (explaining causal relationships) and an easy-to-use user interface, significantly improves the national energy and climate policy making process. Accordingly, to verify the hypothesis, the task was to evaluate the use of the national climate and energy policy simulation tool in the policy-making process. For the evaluation, the relevant literature was reviewed: climate and energy policy goals, policies and legislation in the European Union and Latvia; approaches to modeling national climate and energy policies, including optimization models, simulation models; the use of simulation models in the modeling of national climate and energy policies; the use of system dynamics models in the modeling of national climate and energy policies. Besides using the systemic thinking approach in the process of creating national climate and energy policies, the user experience in building simulation tools was used. Based on the literature analysis, improvements to the interface of the national climate and energy simulation tool developed by the RTU, Institute of Energy Systems and Environment were made and developed training material for the use of the simulation tool based on explaining the causal relationships built into the model.

Keywords – Energy transition; policy making; renewable energy; simulation tool; system dynamics modeling



System dynamics modelling interconnection with energy transition.