

ABSTRACT OF DOCTORAL DISSERTATION

*Planning local and regional development with the use of participatory backcasting
(based on the example of distributed energy)*

This dissertation addresses the issue of planning for local and regional development using the example of distributed energy based on participatory backcasting. The topic is contemporary and the developed solution will have a practical application, and indeed may become a helpful tool in the management of development processes.

The aim of the dissertation is to identify, develop and verify a model for local and regional development planning based on participatory backcasting. It achieves this through the use of distributed electricity as an example.

The construction of the local and regional development planning model required analysing the essence of backcasting and participatory backcasting derived from futures studies. Based on the conclusions of the literature analysis, consultations with experts and the author's experience, a model was then designed which assumed to be best suited to the needs of local and regional governments. The proposed model was then tested through a backcasting experiment, conducted with the participation of residents and representatives of the municipalities of the Chełm Renewable Energy Cluster members, experts of the Polish Chamber of Renewable Energy Sources and Efficient Energy and experts dealing with issues in the energy sector.

The following research methods were used in the backcasting experiment: secondary research (desk research), open meetings (consultations), SWOT and PESTLE analyses, stakeholder analysis (map and stakeholder matrix), forecasting, data interpretation, surveys and the Delphi method.

The dissertation consists of an introduction, five chapters and a conclusion. The layout of the dissertation was subordinated to the implementation of the adopted main objective. The first chapter discusses the issues of local and regional development, and characterises the processes of management and development planning in territorial self-government units. After presenting the notion and essence of the development process and local and regional development were presented, the chapter explores the concepts of territorial and sustainable development. Next, the concepts of management and strategic development management were

presented in territorial self-government units. The development management strategy, which is the basic document of strategic management in territorial self-government units, was discussed next. The concept of integrated development management was also presented. Finally, the process of development planning in territorial self-government units was presented, including the differences between strategic and operational planning, the concept of integrated planning and the process of building an integrated development strategy for territorial self-government units.

Chapter two reviews the knowledge of energy development trends. Three dominant trends are identified, namely decarbonisation, digitalisation and decentralisation. The projected energy system transformation scenario was presented and discussed. This was followed by a discussion of the development directions of the energy sector, bringing closer the political and legislative conditions for the development of the energy sector that have the greatest impact on the shape of the future energy system in the European Union and Poland. The essence of distributed energy was also discussed.

Chapter three systematises knowledge and presents the results of the literature analysis on backcasting studies.

Chapter four presents the results of the literature analysis on backcasting and participatory backcasting. A classification of backcasting and backcasting models is indicated. Chapter four concludes with the conclusions of the review of the national literature on backcasting and participatory backcasting, which accentuate the existing research gap in the literature regarding the construction and operationalisation of the participatory backcasting planning model.

Chapter five covers the presentation of the assumptions and construction of the participatory backcasting planning model. For this purpose, the constructed model of participatory backcasting planning is presented, together with the results and conclusions of the results and conclusions of the conducted research. First, the author's assumptions of the research procedure and its design are described, with the individual stages detailed. Then, the characteristics of the research and backcasting experiments are presented, on the basis of which the empirical research experiment and a model of participatory backcasting planning were designed. The details and assumptions of the model were further presented, followed by its characterisation in terms of backcasting generation and backcasting typology. Next, the course of the backcasting experiment is outlined, introducing its stages and the results obtained as a result. The chapter closes with a summary indicating the contribution made to the development of science, thereby fulfilling the main objective of the dissertation. The conclusion additionally

proposes directions for further research in the adaptation and development of the proposed model.

The dissertation ends with a conclusion and a list of the bibliography used. The accompanying appendices provide supplementary material and information on the course of the research procedure.