

Contents

FOREWORD	7
1 IMPERATIVES FOR THE TRANSITION TO CLIMATE-NEUTRAL ENERGY DEVELOPMENT	11
1.1 Change of the positioning “green” energy in the energy market: transition from a resource-saving to a climate-neutral approach	11
1.2 Integration of digital tools in the promoting climate policy of alternative energy enterprises	18
1.3 Peculiarities of the COVID-19 impact to global energy security change	22
1.4 Management in the RES sector in a sustainable development environment	32
2 DETERMINATION OF THE ENERGY SECURITY RESILIENCE TO THE CLIMATE-NEUTRAL TRANSITION	43
2.1 Evaluation of the positioning “green” energy as a climate-neutral product in the energy market	43
2.2 Analysis of economic potential of energy enterprises in the climate-neutral transition: a case of Ukraine	56
2.3 Using the digital marketing principles for the climate-neutral development of energy services	67
3 INTERSECTORAL CLIMATE-NEUTRAL APPROACH TO THE SUSTAINABILITY OF ENERGY SECURITY	79
3.1 Optimization of the biomass supply chain: the interaction of agricultural enterprises and enterprises producing “green” energy	79
3.2 Shaping the climate-neutral behavior of consumers of energy: interaction between enterprises of “green” energy, energy service, and “green” transport	89
3.3 Digitalization of production and consumption “green” energy	95

4	INNOVATIVE COMPONENTS OF THE CLIMATE-NEUTRAL POLICY IN ENERGY MARKET	103
4.1	Methodological approach to determine the sustainability indicators for the development of climate-neutral technologies in the energy security sector	103
4.2	Optimization of the management model for promoting “green” energy in the context of development smart grids	106
4.3	Algorithm for applying a climate-neutral management of energy service innovation in smart world	111
5	TOWARD THE CLIMATE-NEUTRAL INNOVATION AND ENERGY SECURITY – THE CASE OF POLAND	117
5.1	Analysis of National Regulation Documents of Energy System in Poland	117
5.2	Energy system, energy mix, capacity market, cross-border activities, structure, and data in Poland	123
5.2.1	Structure of sources of electricity generation in Poland	126
5.2.2	Cross-border power lines and trade	129
5.2.3	Electricity demand in Poland	132
5.3	Energy market and balancing market in Poland	132
5.4	Summary and forecasting for Poland	137
	AFTERWORD	141
	REFERENCES	143
	SCIENTIFIC BIOGRAPHY OF THE AUTHORS	169