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LOW-CARBON ECONOMY TOWARDS NET ZERO: THEORY AND PRACTICE (MONOGRAPH)

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LOW-CARBON ECONOMY

TOWARDS NET ZERO: THEORY AND PRACTICE

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PREFACE



There is now strong scientific evidence that climate change is happening and being accelerated by human activity. Climate risks and climate extreme events have wide-ranging impacts across multiple dimensions of the economy. Without urgent, effective and equitable mitigation actions, climate change will increasingly threaten the health and livelihoods of people, ecosystem health and biodiversity around the globe. Climate change mitigation actions should be designed and conducted in the context of sustainable development, equity, and poverty eradication, and rooted in the development aspirations of the societies.

Signatories to the United Nations Framework Convention on Climate Change (UNFCCC) agreed to pursue efforts to keep the rise in global temperatures to well below 2°C and try to limit the temperature increase to 1.5°C above pre-industrial levels by 2050 in Paris in 2015. Ambitious target on Net Zero, committed at 26th Conference of the Parties to the UNFCCC (COP26) in 2021, has been adopted by a number of countries, including advanced economies, emerging and developing countries, and regional groups. Countries are adopting diverse approaches across key dimensions of their net zero targets. To meet the global climate goals, policy makers, business, city administrators, civil society and the financial sector all have a role to play.

Reaching net zero emissions by 2050 is the inevitable development pathway of the world in the future. This is mainly realized through a robust low-carbon transition towards a low-carbon development pathway. By transitioning to a low-carbon economy built on shifting away from fossil fuels, enhancement of energy efficiency, renewable energy and low-carbon technologies, promoting nature-based solutions, circular economy, sustainable production and consumption patterns as well as awareness raising, countries can combat climate change while at the same time strengthening the economy competitiveness and bring socio-economic benefits for all. Accelerating the low-carbon transition is an urgent and challenging task. It will require farsighted choices, wise investments and enhanced international cooperation on technology development and climate finance.

The transition to a low-carbon economy highlights the growing role of non-state and sub-national actors including cities, businesses, citizens, transnational initiatives,

and public-private entities in the global effort to address climate change. The transition follows principles, processes and practices of a just transition aimed at ensuring that no people, places, sectors, countries or regions are left behind in the move from a high-carbon to a low-carbon economy. In this transition, respect and dignity for vulnerable groups and indigenous people, creation of decent jobs, social protection, employment rights, fairness in energy access and use and social dialogue and democratic consultation with relevant stakeholders play a critical role.

The book “**Low-carbon Economy towards Net Zero: Theory and Practice**” has been compiled by a team of researchers of the National Economics University, Vietnam. The book, structured in seven chapters, aims to provide readers with updated information and in-depth analysis of various topics of low-carbon economy towards net zero from theory to practice.

Chapter 1: Introduction to Low-carbon Economy presents an overview of a low-carbon economy towards net zero target from theoretical and practical perspectives. The chapter provides a brief background and context with respect to economic growth and greenhouse gas emissions at a global scale, setting out some issues for further discussion on carbon budget and net zero emission. Policies for a low-carbon economy towards net zero and the case of Viet Nam in the transition to a low-carbon economy towards net zero are explored in the chapter.

Chapter 2: Low-carbon Energy focuses on theoretical and practical aspects of low-carbon energy towards net zero. The chapter gives insights into the global energy supply and consumption and global greenhouse gas emissions from energy sector. The chapter analyses the energy transition for a low-carbon economy towards net zero and policies for a low-carbon energy towards net zero. Two case studies in Viet Nam and Taiwan in the transition to low-carbon energy for net zero are discussed in the chapter.

Chapter 3: Low-carbon Business provides an analysis of low-carbon business from theory to practice. The chapter presents an overview of business growth and carbon emissions and discusses corporate social responsibility in the climate change context. Putting business sector in the net zero pathway requires business’s innovative strategies towards net zero target. Two typical case studies of low-carbon business in Viet Nam and Taiwan are explored in the chapter.

Chapter 4: Low-carbon Cities analyzes the relationship between cities and climate change, evaluates greenhouse gas emissions from cities and indicates the role

of cities in the low-carbon development pathway. Cities should be aligned with net zero target and thus policy framework for low-carbon cities toward net zero plays a critical role. The chapter also presents the implementation of low-carbon strategy in selected cities in Viet Nam.

Chapter 5: Nature-based solutions towards a Low-carbon Economy indicates the importance of natural systems for a low-carbon economy and net zero target. An overview of carbon stocks and flows in different types of ecosystems is provided to explain the role of natural systems in storing, accumulating and reducing carbon emissions. The potential impacts of nature-based solutions in climate change mitigation and socio-economic developments are also discussed. Besides, the issues related to the implementation, scaling up and mainstreaming nature-based solutions are analyzed from both theoretical and practical aspects.

Chapter 6: Circular economy towards a Low-carbon Economy presents the concept and the principles of circular economy and its role in the transition to a low-carbon economy. Some strategies towards circular economy for businesses as well as for the society are reviewed. The chapter discusses how to integrate circular economy into policy framework for net zero emissions target and provides the status of circular economy in some selected countries.

Chapter 7: Climate finance towards a Low-carbon Economy provides an overview of climate finance, the link between climate finance and low-carbon economy, the experience of climate finance mobilization of different countries in the world and the current state of climate finance in Viet Nam.

The chapters of the book follow a uniform format. The chapter begins with an introduction to the context and purpose of the chapter, and then followed by specific contents of the chapter and concludes with a summary of the main findings. In addition, tables, figures, and boxes are presented to provide practical information and insights into thematic topics. Selected case studies are also analyzed, including case studies in Vietnam, Taiwan, EU and others.

In general, low-carbon economy towards net zero is a broad topic with interdisciplinary and cross-cutting issues. Although the authors have tried to synthesize from the most up-to-date documents on this topic, the book inevitably remains shortcomings. All comments from readers are welcome.