ENERGY SECURITY IN TIMES OF ECONOMIC TRANSITION

Lessons from China

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Energy Security in Times of Economic Transition: Lessons from China

BY

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Emerald Publishing Limited
Howard House, Wagon Lane, Bingley BD16 1WA, UK

First edition 2021

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

ISBN: 978-1-83982-465-4 (Print)
ISBN: 978-1-83982-464-7 (Online)
ISBN: 978-1-83982-466-1 (Epub)

ISOQAR certified Management System, awarded to Emerald for adherence to Environmental standard ISO 14001:2004.

Certificate Number 1985
ISO 14001

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Abbreviations

Acceptability by society	**AC**
Affordability of energy prices	**AF**
Analytic hierarchical process	**AHP**
Applicability of technology	**AP**
Asia Pacific Energy Research Centre	**APERC**
Availability of resource	**AV**
Barrels per day	**bpd**
Belt and Road Initiative	**BRI**
Billion cubic metres	**bcm**
British Petroleum	**BP**
Carbon capture and storage	**CCS**
Carbon dioxide	**CO_2**
China Energy Conservation Investment Corporation	**CECIC**
China National Offshore Oil Corporation	**CNOOC**
China National Petroleum Corporation	**CNPC**
China Petrochemical Corporation	**Sinopec**
China Statistical Yearbook	**CSY**
China's National Development and Reform Commission	**NDRC**
China-Pakistan Economic Corridor	**CPEC**
Chinese Academy of Social Sciences	**CASS**
Chinese Communist Party	**CCP**
Coal-bed methane	**CBM**
Coal-mine methane	**CMM**
Contract Responsibility System	**CRS**
Department for Business, Enterprise and Regulatory Reform	**DBERR**
Diversification of primary energy demand	**DoPED**
Driving force–state–response	**DSR**
Energy indicators for sustainable development	**EISD**
Energy Information Administration	**EIA**
European Union	**EU**
Five-Year Plan of economic and social development	**FYP**
Frontier Works Organisation	**FWO**
Global Terrorism Index	**GTI**
Greenhouse gas	**GHG**
Gross domestic product	**GDP**
Gross national product	**GNP**

Group company system	**GCS**
Gulf Cooperation Council	**GCC**
Household Responsibility system	**HRS**
Hydro, Eolien, Light, Insulation, Organomasse	**HELIO**
Independent power producer	**IPP**
Indicators for sustainable energy development	**ISED**
Initial public offering	**IPO**
International Atomic Energy Agency	**IAEA**
International Energy Agency	**IEA**
Kilowatt-hour	**kWh**
Kuomintang	**KMT**
Large and medium-sized enterprise	**LME**
Liquefied natural gas	**LNG**
Lawrence Berkeley National Laboratory	**LBNL**
Megawatt-hour	**MWh**
Memorandum of understanding	**MOU**
Middle East Oil Import Dependency	**MEOID**
Million tons	**Mt**
Modern enterprise system	**MES**
National Bureau of Statistics of China	**NBS**
National Energy Administration	**NEA**
National Environmental Protection Agency	**NEPA**
National Oil Company	**NOC**
National People's Congress	**NPC**
National Renewable Energy Laboratory	**NREL**
Net energy import dependency	**NEID**
Net oil import dependency	**NOID**
Non-carbon based fuel portfolio	**NCFP**
Non-governmental organisation	**NGO**
Not in my backyard	**NIMBY**
Oil vulnerability index	**OVI**
Organisation for Economic Co-operation and Development	**OECD**
Particulate matter-10	**PM_{10}**
People's Republic of China	**PRC**
Renminbi	**RMB**
Research and Development	**R&D**
Reserve-to-production	**R/P**
State Electricity Regulatory Commission	**SERC**
Small and medium-sized enterprise	**SME**
State Development and Planning Commission	**SDPC**
State Economic and Trade Commission	**SETC**
State Electricity Regulatory Commission	**SERC**
State Environmental Protection Administration	**SEPA**
State Petrochemical Industry Bureau	**SPIB**
State Planning Commission	**SPC**
State Power Corporation of China	**SPCC**

State Power Investment Corporation	**SPIC**
State-owned enterprise	**SOE**
Sulfur dioxide	**SO_2**
Sustainable Energy Watch	**SEW**
Sustainability indicator	**SI**
Tons of coal equivalent	**tce**
Total primary energy supply	**TPES**
Township and village coal mine	**TVCM**
Township and village enterprise	**TVE**
United Nations	**UN**
United Nations Development Programme	**UNDP**
United States	**U.S.**
United States Dollar	**USD**
Work programme on indicators of sustainable development	**WPISD**
World Energy Council	**WEC**

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Introduction

Despite unprecedented energy consumption rates and environmental sustainability threats, China has seen fast economic growth and its energy policy and energy security have gone through decades of transformation. As China's economy shifts from a planned to a market mechanism, it is valuable to find the root reason behind the transformation of the energy policy and energy security situation.

International political economy and security studies on China have yet to explore the interaction among three important factors: its energy policy, its energy security, and macroeconomic reform. This book aims to fill this gap in the literature with a new methodological approach to the study of China's energy security. It applies both quantitative and qualitative analyses to the energy security situation in China during the reform period. With this said, two primary objectives are achieved in this book. The first objective is to examine how the energy security situation in China has evolved during the economic reform period. This book establishes a quantitative framework based on a comprehensive concept of energy security which covers availability of resources, applicability of technologies, acceptability by society, and affordability of prices. The framework analysis shows that China's energy security situation has not improved during the reform period.

The second objective of the book is to explore qualitatively why the energy security situation has not improved. To answer the 'why' question, the book opens up a new perspective by analysing the relationship between energy policies and the macroeconomic reform. It is found that China's macroeconomic reform has restricted the formation of China's energy policies and determined its energy security situation. In essence, China's energy policies are only a reaction to the macroeconomic measures. In other words, China's energy policies are not originally intended to improve energy security, but passive reactions to China's macroeconomic reform. This explains why China did not improve its energy security situation despite 40 years of reform.

In addition, with a separate chapter, it also includes an international perspective by studying the impact of China's Belt and Road Initiative on its energy security situation. This book is not only meaningful for the case of China but also useful to explain energy security in other countries, especially those countries in economic transition.

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Acknowledgment

I would like to thank my parents from the bottom of my heart for their dedication and support. They always stand by me whenever I am in difficulty. They are the nicest people in my world.

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