Security of Energy Supply in Europe
Natural Gas, Nuclear and Hydrogen

Edited by
Francois Lévêque
Professor of Law and Economics, École des Mines de Paris, France

Jean-Michel Glachant
Loyola de Palacio Professor for European Energy Policy and Director, Florence School of Regulation, European University Institute, Italy, and Professor of Economics, Université Paris-Sud, France

Julian Barquín
Professor, Institute for Technology Research, Universidad Pontificia Comillas, Madrid, Spain

Christian von Hirschhausen
Professor for Energy Economics and Public Sector Management, University of Technology Dresden, and Research Director, DIW Berlin (German Institute for Economic Research), Germany

Franziska Holz
Senior Researcher, DIW Berlin (German Institute for Economic Research), Germany

William J. Nuttall
Senior Lecturer in Technology, Judge Business School and Engineering Department and Assistant Director of the Electricity Policy Research Group, University of Cambridge, UK

LOYOLA DE PALACIO SERIES ON EUROPEAN ENERGY POLICY

Edward Elgar
Cheltenham, UK • Northampton, MA, USA
Contents

List of contributors vii
Introduction ix

PART I NATURAL GAS

1 Supply security and natural gas
   Christian von Hirschhausen, Franziska Holz, Anne Neumann
   and Sophia Rüster 3

2 Seeking competition and supply security in natural gas: the US
   experience and European challenge
   Jeff Makholm 21

3 The new security environment for European gas: worsening
   geopolitics and increasing global competition for LNG
   Jonathan Stern 56

4 Natural gas and geopolitics
   David G. Victor 91

PART II NUCLEAR POWER

5 European electricity supply security and nuclear power: an
   overview
   William J. Nuttall and David M. Newbery 109

6 Contractual and financing arrangements for new nuclear
   investment in liberalized markets: which efficient combination?
   Dominique Finon and Fabien Roques 117

7 Nuclear power and deregulated electricity markets: lessons
   from British Energy
   Simon Taylor 155

8 Nuclear energy in the enlarged European Union
   William J. Nuttall 166

PART III HYDROGEN

9 Supply security and hydrogen
   Julián Barquin and Ignacio Pérez-Arriaga 191
10 Hydrogen from renewables
Dries Haeseldonckx and William D'haeseleer

11 Build-up of a hydrogen infrastructure in Europe
Martin Wietschel, Philipp Seydel and Christoph Stiller

12 The contributions of the hydrogen transition to the goals of the EU energy and climate policy
Anders Chr. Hansen

13 R&D programs for hydrogen: US and EU
Steven Stoft and César Dopazo

PART IV CONCLUSIONS

14 EU energy security of supply: conclusions
Jean-Michel Glachant, François Lévêque and Pippo Ranci

Name index
Subject index