1. Record Nr. UNINA9910965490303321

Titolo	The hydrogen economy : opportunities, costs, barriers, and R&D needs / / Committee on Alternatives and Strategies for Future Hydrogen Production and Use, Board on Energy and Environmental Systems, Division on Engineering and Physical Sciences, National Research Council and National Academy of Engineering of the National Academies
Pubbl/distr/stampa	Washington, D.C., : National Academies Press, c2004
ISBN	9786610176328 9781280176326 1280176326 9780309530682 0309530687
Edizione	[1st ed.]
Descrizione fisica	1 online resource (256 p.)
Disciplina	333.793
Soggetti	Hydrogen as fuel Hydrogen as fuel - Economic aspects - United States Globalization
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	FrontMatter -- Acknowledgments -- Contents -- Tables and Figures -- Executive Summary -- 1 Introduction -- 2 A Framework for Thinking About the Hydrogen Economy -- 3 The Demand Side: Hydrogen End-Use Technologies -- 4 Transportation, Distribution, and Storage of Hydrogen -- 5 Supply Chains for Hydrogen and Estimated Costs of Hydrogen Supply -- 6 Implications of a Transition to Hydrogen in Vehicles for the U.S. Energy System -- 7 Carbon Capture and Storage -- 8 Hydrogen Production Technologies -- 9 Crosscutting Issues -- 10 Major Messages of This Report -- References -- Appendixes -- Appendix A Biographies of Committee Members -- Appendix B Letter Report -- Appendix C DOE Hydrogen Program Budget -- Appendix D Presentations and Committee Meetings -- Appendix E Spreadsheet Data from Hydrogen Supply Chain Cost Analyses -- Appendix F U.S.

Energy Systems -- Appendix G Hydrogen Production Technologies: Additional Discussion -- Appendix H Useful Conversions and Thermodynamic Properties.

Sommario/riassunto

The announcement of a hydrogen fuel initiative in the President (TM)s 2003 State of the Union speech substantially increased interest in the potential for hydrogen to play a major role in the nation (TM)s long-term energy future. Prior to that event, DOE asked the National Research Council to examine key technical issues about the hydrogen economy to assist in the development of its hydrogen R&D program. Included in the assessment were the current state of technology; future cost estimates; CO2 emissions; distribution, storage, and end use considerations; and the DOE RD&D program. The report provides an assessment of hydrogen as a fuel in the nation (TM)s future energy economy and describes a number of important challenges that must be overcome if it is to make a major energy contribution. Topics covered include the hydrogen end-use technologies, transportation, hydrogen production technologies, and transition issues for hydrogen in vehicles.