

About the publisher and authors

ROCKY MOUNTAIN INSTITUTE (www.rmi.org) is an independent, nonprofit, nonpartisan, entrepreneurial applied research center founded in 1982 by resource analysts Amory and Hunter Lovins in Snowmass, Colorado. Its ~50 staff foster the efficient and restorative use of natural and human capital to make the world secure, just, prosperous, and life-sustaining. Most of the Institute's \$6-million annual budget is funded by programmatic enterprise, chiefly consultancy for the private sector. The Institute has also spun off four for-profit firms. About one-third of revenues come from foundation grants and individual donations; government support is rare and seldom sought. RMI does not lobby or litigate. Its extensive business experience includes strategic and technical consultancy, often at Chair and CEO level, for scores of major energy companies worldwide, and its services have recently been provided for or requested by more than 70 *Fortune* 500 companies.

AMORY B. LOVINS is cofounder and CEO of Rocky Mountain Institute. A consultant experimental physicist educated at Harvard and Oxford (where he received an MA by virtue of being a don), he has advised the energy and other industries for over 30 years, as well as the U.S. Departments of Energy and Defense. Published in 28 previous books and hundreds of papers, his work in ~50 countries has been recognized by the "Alternative Nobel," Onassis, Nissan, Shingo, and Mitchell Prizes, a MacArthur Fellowship, the Happold Medal, nine honorary doctorates, and the Heinz, Lindbergh, Hero for the Planet, and World Technology Awards. He advises industries and governments worldwide, including major oil companies, and has briefed 18 heads of state. Since 1990, he has led the development of quintupled-efficiency, uncompromised, competitive automobiles and a profitable hydrogen transition strategy. Much of his work is synthesized in *Natural Capitalism* (www.natcap.org) and *Small Is Profitable: The Hidden Economic Benefits of Making Electrical Resources the Right Size* (www.smallisprofitable.org), one of the *Economist's* top three business and economics books of 2002. He is a member of the Society of Automotive Engineers, American Physical Society, and International Association for Energy Economics, and is a Fellow of the American Association for the Advancement of Science, World Academy of Arts and Sciences, and World Business Academy. *Automobile* magazine has called him the 22nd most powerful person in the global car industry; the *Wall Street Journal*, one of 39 people in the world most likely to change the course of business in the 1990s; *Newsweek*, "one of the Western world's most influential energy thinkers."

Mr. Lovins's security background includes devising the first logically consistent approach to nuclear nonproliferation (technical papers⁹⁸³ and two books); performing for DoD the definitive unclassified study of domestic energy vulnerability and resilience;⁹⁸⁴ co-developing a "new security triad" of conflict prevention, conflict resolution, and nonprovocative defense;⁹⁸⁵ lecturing at the National Defense University, Naval War College, and Naval Postgraduate School on least-cost security and on how new technologies will transform missions and force structures; keynoting the Chief of Naval Operations' 2003 Naval-Industry R&D Partnership Conference; leading for Admiral Lopez the overhaul of the Naval Facilities Engineering Command's design process (later extended to other Services); leading a 2000–01 Office of Naval Research analysis for the Secretary of the Navy of how to save ~\$1 million/y of hotel-load electricity aboard a typical surface combatant (*USS Princeton CG-59*);⁹⁸⁶ and serving on a 1999–2001 Defense Science Board panel, chaired by Vice Admiral (Ret.) Richard Truly, whose report *More Capable Warfighting Through Reduced Fuel Burden* identified multi-billion-dollar-a-year DoD fuel-saving potential.⁹⁸⁷

E. KYLE DATTA, Managing Director of RMI's consulting practice, is also CEO of New Energy Partners, an energy consulting and renewable development firm in Hawai'i. He is a former Vice President of Booz | Allen | Hamilton (BAH), where he was Managing Partner of the Asia Energy Practice, later led the U.S. Utilities practice, and received the firm's Professional Excellence Award in 1995 and 1997. In his 12 years with BAH, he developed deep expertise in and across the energy value chain, including upstream, refining, retail, power, chemicals, and renewables. He is also coauthor of *Small Is Profitable: The Hidden Economic Benefits of Making Electrical Resources the Right Size*. He holds BS, MES, and MPPM degrees from Yale University. He is a member of the Distributed Energy Research Advisory Council, the Natural Energy Laboratory of Hawai'i Authority, and the board of directors of Foresight Energy. In this report he shared overall strategic direction and content responsibility, led the business and policy analyses, and performed the hydrocarbon substitution analyses.

983. Summary in Lovins, Lovins & Ross 1980; typical unclassified support in Lovins 1980.

984. Lovins & Lovins 1982: Foreword by ex-JCS Chair ADM (Ret.) Tom Moorer and ex-USECNAV, later DCI, Jim Woolsey.

985. Shuman & Harvey 1993.

986. RMI report under ONR Grant #N00014-01-1-0252 (Lovins et al. 2001), summarized at Lovins 2001.

987. DSB 2001.

Rocky Mountain Institute is an independent, entrepreneurial, nonprofit applied research center working chiefly with the private sector to foster advanced resource productivity. The authors have extensive experience in and with all sectors of the energy industries.

ODD-EVEN BUSTNES, a member of RMI's Energy/Resources and Commercial/Industrial consulting practices (and Special Aide to the CEO 2002–04), holds a Dartmouth BA (High Honors) in Engineering and Government, an Oxford MSc in Chemical Engineering, and a Princeton MPA in Economics. He has been an associate consultant in energy and telecoms with McKinsey & Company, a financial analyst of the shipping sector for Union Bank of Norway Securities, a UNICEF water program analyst in Perú, a Norwegian Special Forces paratrooper, a high-altitude mountaineer on four continents, and an Olympic rower. His primary responsibilities in this report included the heavy- and medium-truck, aircraft, train, ship, Intelligent Highway Systems, and asphalt analyses, and co-leadership of the business-case and implementation modeling.

JONATHAN G. KOOMEY, Senior Fellow at RMI, is on a leave of absence from Lawrence Berkeley National Laboratory (LBNL), where as a Staff Scientist he led the End-Use Forecasting Group. He holds a Harvard AB *cum laude* in History of Science and MS and PhD degrees from the Energy and Resources Group at the University of California at Berkeley. He is the author or coauthor of seven previous books and more than 130 articles and reports on energy efficiency and environmental policy. He serves on the Editorial Board of the journal *Contemporary Economic Policy*. He has received the Fred Burgraff Award from the National Research Council's Transportation Research Board and two outstanding performance awards from LBNL—one for leading the economic integration and buildings analyses for the first “Five Labs Study” in 1997. His LBNL group analyzes markets for efficient products, improves their energy and environmental characteristics, and develops recommendations for DOE/EPA policymakers to save energy and money and prevent pollution. He was the 2003–04 MAP/Ming Visiting Professor of Energy and Environment at Stanford University, is now a consulting professor at Stanford, is the recipient of an Aldo Leopold Leadership Fellowship for 2004, and is a holder of a second degree black belt in Aikido. His main responsibilities in this report included light-vehicle economic modeling and fleet analyses and the integrated calculations of oil efficiency potentials, as well as other important conceptual and technical contributions throughout the entire project.

NATHAN J. GLASGOW, a member of RMI Research & Consulting Practice and (from September 2004) Special Aide to the CEO, holds a BA in Human Biology from Stanford and an MA in Economics from the University of California at Santa Barbara. His experience includes project and office management for the nation's leading rammed-earth building firm, founding and leading a software firm, programming, biomedical research, and service as a volunteer firefighter and EMT. He performed extensive modeling for the implementation and business-case portions of this report, including construction of the light-vehicle cohort model, as well as providing diverse graphics and research support throughout.