

Biographical Sketch of Amory B. Lovins

Amory Lovins, 61, is cofounder, Chairman, and Chief Scientist of Rocky Mountain Institute (www.rmi.org)—a 27-year-old, ~85-person, independent, nonpartisan, entrepreneurial, market-oriented, nonprofit think-and-do tank in Old Snowmass, Colorado. RMI drives the efficient and restorative use of resources. Its ~\$13 million/y revenue comes from grants, donations, and programmatic enterprise, chiefly business consultancy supporting its mission.

A consultant experimental physicist educated at Harvard and Oxford, and a dropout from both, Mr. Lovins is among the world's leading innovators in energy and its links with resources, security, economy, development, and environment. He has advised the energy and other industries for four decades as well as the U.S. Departments of Energy and Defense. His work in 50+ countries has been recognized by the "Alternative Nobel," Blue Planet, Volvo, Onassis, Nissan, Shingo, Goff Smith, and Mitchell Prizes, the Benjamin Franklin and Hapgood Medals, a MacArthur Fellowship, ten honorary doctorates, honorary membership of the American Institute of Architects, Foreign Membership of the Royal Swedish Academy of Engineering Sciences, honorary Senior Fellowship of the Design Futures Council, and the Heinz, Lindbergh, Jean Meyer, *Time* Hero for the Planet, *Time International* Hero of the Environment, *Popular Mechanics* Breakthrough Leadership, National Design (Design Mind), and World Technology Awards. He received an Oxford MA, by virtue of being a don, and ten honorary doctorates. He has briefed 19 heads of state; published 29 books and several hundred papers; and consulted for scores of industries and governments worldwide, including many major electricity, oil, gas, car, and technology companies. His Pentagon-cosponsored 29th book, *Winning the Oil Endgame* (2004, www.oilendgame.com), shows how to eliminate U.S. oil use at a profit by the 2040s, led by business for profit.

In the 1990s, Mr. Lovins founded, led, spun off as E SOURCE (www.esource.com), and sold to the *Financial Times* group in 1999 a team that conducted perhaps the world's deepest examination of advanced techniques for the efficient use of electricity through integrative design. This later expanded into a broad approach to making very large resource savings cost less than small or no savings (www.rmi.org/stanford). He also cofounded and -led the most detailed utility experiment in this area (PG&E's \$18-million ACT²); developed most of the methods now in use for making markets in saved energy; codified 207 "distributed benefits" that can typically increase the economic value of decentralized generators by an order of magnitude (www.smallisprofitable.org); and shaped much of the electricity policy agenda since the mid-1970s. His 1976 *Foreign Affairs* paper "Energy Strategy: The Road Not Taken?"—widely credited with having redefined the energy problem in end-use/least-cost terms—suggested a level of year-2000 U.S. energy consumption within a few percent of its actual value. In 2000–01, he convened the National Energy Policy Initiative, which reached a strong, visionary, bipartisan consensus on U.S. energy strategy (www.nepinitiative.org).

In 1990–91, Mr. Lovins invented the Hypercar[®] concept—a new way to design and build cars, integrating ultralight, ultra-low-drag platforms, hybrid-electric drive, and radically simplified, software-rich design. He led RMI's Hypercar Center in a \$3-million exploration and incubation of this concept until 1999, advising many automakers and suppliers worldwide on how to take advantage of it. He put the concept into the public domain in 1993, contributing to the rapidly spreading transformation of the automotive industry and the commitment of private capital thousands of times RMI's R&D investment. In 1999, he spun off a small technology development company, Hypercar, Inc. (www.hypercar.com)—which he chaired until 2007 (he's still a Director) and in which (to declare an interest) he holds minor equity and options—to develop Hypercar designs and technologies that support the industry's transition. The privately financed firm developed an illustrative, production-costed, manufacturable, midsize SUV concept car—uncompromised, competitively priced, zero-emission, and 114 EPA mpg on hydrogen or 67 on gasoline—designed around a breakthrough manufacturing process for affordable ultralight autobodies. Such designs also permit a rapid and profitable transition to a hydrogen economy (described in www.rmi.org/sitepages/pid171.php#20H2Myths). Hypercar, Inc., which received its own World Technology Award in 2003, is commercializing its patented Fiberforge[™] process for manufacturing cost-competitive carbon-fiber structures, and recently changed its name to Fiberforge Corporation (www.fiberforge.com).

The Wall Street Journal's Centennial Issue named Mr. Lovins among 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"; *Time* in 2009, one of the world's 100 most influential people. Dr. Alvin Weinberg, former Director of Oak Ridge National Laboratory, "surely the most articulate writer on energy in the whole world today"; and *Car* magazine, the 22nd most powerful person in the global automotive industry. Dr. John Ahearne, then Vice President of Resources for the Future, remarked that "Amory Lovins has done more to assemble and advance understanding of [energy] efficiency opportunities than any other single person." He has been profiled in *The Economist*, *Fortune*, *Forbes*, *Time*, *New*

Yorker, Harvard Magazine, and elsewhere. His business books include *Natural Capitalism: Creating the Next Industrial Revolution* (with Paul Hawken and L. Hunter Lovins, 1999, www.natcap.org) and *Small Is Profitable: The Hidden Economic Benefits of Making Electrical Resources the Right Size* (RMI, August 2002, www.smallisprofitable.org, an *Economist* book of the year). He has recently led the superefficient redesign of \$30 billion worth of industrial facilities in 29 sectors, generally saving 30–60% of energy use on retrofits with 2–3-year average paybacks, and saving 40–90% in new construction with generally reduced capital cost.

His national-security work includes devising the first logically consistent approach to nuclear nonproliferation (technical papers and two books, 1979–83); performing for DoD the definitive unclassified study of domestic energy vulnerability and resilience (*Brittle Power: Energy Strategy for National Security*, 1982, www.rmi.org/sitepages/pid533.php, with L.H. Lovins and a foreword by former JCS Chairman ADM Tom Moorer and former Under Secretary of the Navy, later DCI, Jim Woolsey); co-developing a “new security triad” integrating conflict prevention, conflict resolution, and nonprovocative defense (summarized by H. Harvey & M. Shuman, *Security Without War*, 1990–93); lecturing at NDU, NWC, NPS, DAU, STRATCOM, etc. on least-cost security and on how new technologies will transform missions and force structures; leading for ADM Lopez the overhaul of NAVFAC’s design process; supporting similar facilities efforts by USMC and other Services; technical discussions with SECNAV, C3F, and COMNAVSEA; hosting seminars for CNO’s Strategic Studies Group and VADM McGinn’s study of network-centric warfare; joining VADM Cebrowski’s 2002 military-transformation workshop at NDU; keynoting CNO’s 2003 Industrial R&D Partnership conference; exploratory collaborations at NPS; a 2000–01 ONR-funded analysis for SECNAV and C3F of how to save nearly \$1 million a year worth of hotel-load electricity aboard a typical surface combatant (*USS Princeton CG-59*), application of which is under discussion at three-star level; and 1999–2001 service on a Defense Science Board panel, chaired by VADM (Ret.) Richard Truly, that reported in January 2001 on *Enhanced Warfighting Capability Through Reduced Fuel Burden* (www.acq.osd.mil/dsb/fuel.pdf, summarized for lay readers at www.rmi.org/sitepages/art7049.php). In 2006–08 he served on its follow-on study under former SECDEF Schlesinger and GEN Carns (USAF Ret) (*More Fight—Less Fuel*, www.acq.osd.mil/dsb/reports/2008-02-ESTF.pdf). He has also co-led the redesign of refugee camps (www.carebridge.org, Sustainable Settlements charrettes) for humanitarian missions.

In 2007, Mr. Lovins became the first member of the Transformation Advisory Council for the Executive Chairman of Ford Motor Company. His other senior advisory relationships have lately served the leaders of Coca-Cola, Deutsche Bank, Holcim, Interface, and Wal-Mart and of several startup firms. His other clients have included Accenture, Allstate, AMD, Anglo American, Anheuser-Busch, Bank of America, Baxter, Borg-Warner, BP, HP Bulmer, Carrier, Chevron, CIBA-Geigy, CLSA, ConocoPhillips, Corning, Dow, Equitable, GM, HP, Invensys, Lockheed Martin, Mitsubishi, Monsanto, Motorola, Norsk Hydro, Petrobras, Prudential, Rio Tinto, Royal Dutch/Shell, Shearson Lehman Amex, STMicroelectronics, Sun Oil, Suncor, Texas Instruments, UBS, Unilever, Westinghouse, Xerox, major developers, and over 100 energy utilities. His public-sector clients have included OECD, UN, RFF, the Australian, Canadian, Dutch, German, and Italian governments, 13 states, Congress, and the U.S. Energy and Defense Departments. He served in 1980–81 on the U.S. Department of Energy’s senior advisory board. In 1984 he was elected a Fellow of the American Association for the Advancement of Science “for his book *Soft Energy Paths* and many other noteworthy contributions to energy policy,” in 1988, of the World Academy of Arts and Sciences, and in 2001, of the World Business Academy. His most recent visiting academic chair was in spring 2007 as MAP/Ming Professor in Stanford’s School of Engineering, offering the University’s first course on advanced energy efficiency (www.rmi.org/stanford).

An occasional advisor to the National Association of Regulatory Utility Commissioners, World Business Council for Sustainable Development, and Kleiner Perkins Caufield & Byers, Mr. Lovins has addressed scores of fora sponsored by such groups as The Engineering Foundation, Association of Energy Engineers, ASHRAE, Society of Automotive Engineers, [UK] Royal Academy of Engineering, Royal Swedish Academy of Engineering, National Academy of Sciences, American Physical Society, International Association for Energy Economics, Montreux Energy Forum, Institution of Electrical Engineers, McKinsey&Company, Accenture, Merrill Lynch, JPMorgan, Allen & Co., News Corporation, *Fortune*, *Forbes*, *Time*, Urban Land Institute, IDRC, CoreNet, AIA, API, AAPG, AGA, EEI, EPRI, CRIEPI, Hoover and Brookings Institutions, CSIS, Chatham House, Council on Foreign Relations, Pacific Council, Commonwealth Club, Keidanren, Conference Board, World Economic Forum, Tällberg Conference, TED, FiRE, eg, World Bank, Global Business Network, CAR, Highlands Forum, Naval Postgraduate School, Naval War College, National Defense University, Defense Acquisition University, Aspen Design Conference, Royal Society, and Royal Society of Arts. He collaborates on landscape photography and orangutan conservation with his wife, fine-art landscape photographer Judy Hill Lovins (www.judyhill.com).

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