Amory B. Lovins (1947–), an American consultant experimental physicist and 1993 MacArthur Fellow, has been active at the nexus of energy, resources, economy, environment, development, and security in 70+ countries since ~1968. He is widely considered among the world's leading authorities on energy—especially its efficient use and sustainable supply—and a fertile innovator in integrative design and in the newbuild and retrofit design of superefficient buildings, factories, and vehicles.

After two years at Harvard, Mr. Lovins transferred to Oxford, and two years later became a don at 21, receiving in consequence an Oxford MA by Special Resolution (1971) and, later, 12 honorary doctorates of various US and UK universities (1979–2013). He has been Regents' Lecturer at the U. of California both in Energy and Resources and in Economics; Grauer Lecturer at the University of British Columbia; Luce Visiting Professor at Dartmouth; Distinguished Visiting Scholar at the University of Oklahoma; Distinguished Visiting Professor at the University of Colorado; Oikos Visiting Professor of Business, University of St. Gallen; an engineering visiting professor at Peking U.; 2007 MAP/Ming Professor at Stanford's School of Engineering; and 2011–17 Professor of Practice at the Naval Postgraduate School. In 2018, he received an Honorary Phi Beta Kappa from the Harvard Chapter.

During 1979–2002, Mr. Lovins collaborate with L. Hunter Lovins (his wife 1979–99). They shared a 1982 Mitchell Prize, a 1983 Right Livelihood Award (often called the "alternative Nobel Prize"), the 1999 Lindbergh Award, and *Time*'s 2000 Heroes for the Planet Award. In 1989 he won the Onassis Foundation's first DELPHI Prize for their "essential contribution towards finding alternative solutions to energy problems." That contribution included the "end-use / least-cost" redefinition of the energy problem (in *Foreign Affairs* in 1976)—asking what quantity, quality, scale, and source of energy will do each task in the cheapest way. This economically based approach first permitted successful foresight in the competitive energy-service marketplace. In 1993 he received the Nissan Prize for inventing superefficient ultralight-hybrid cars (which successfully entered the market in 2013), and in 1999, partly for that work, the World Technology Award (Environment). He also received the Heinz Award, the Happold Medal of the [UK] Construction Industry Council, the Benjamin Franklin Medal of the [UK] Royal Society of Arts (Life Fellow), and in 2007, the Blue Planet Prize, Volvo Prize, honorary membership of the American Institute of Architects, Foreign Membership of the Royal Swedish Academy of Engineering Sciences, *Time International*'s Hero of the Environment award, *Popular Mechanics*' Breakthrough Leadership award, and honorary Senior Fellowship of the Design Futures Council. In 2008 he was named one of America's 24 Best Leaders by *U.S. News & World Report* and Harvard's Kennedy School, and received the first Aspen Institute / *National Geographic* Energy and Environment Award for Individual Thought Leadership. In 2009, he received the National Design Award and an Ashoka Fellowship, while *Time* named him among the world's 100 most influential people, and *Foreign Policy*, one of the 100 top global thinkers. In 2011, he was co-Runner-Up for the Zayed Future Energy Prize. In 2012, he was the American Council for Renewable Energy's Leader of the Decade Award, and the next year, entered the Kyōto Hall of Fame. In 2016, the President of Germany awarded him that nation's highest civilian honor, the Officer's Cross of the Order of Merit (*Bundesverdienstkreuz 1. Klasse*).

In 1982, the Lovinses cofounded Rocky Mountain Institute (www.rmi.org), an independent, entrepreneurial, nonprofit think-do-and-scale tank where he initially served as VP Research. After Ms. Lovins left RMI in 2002, he became CEO, then Chairman, and in 2007–19 Chief Scientist, continuing from September 2019 as a contractor and Trustee. RMI's ~250 global staff transform global energy use to create a clean, prosperous, secure, low-carbon future.

Mr. Lovins led the energy design for his home (and RMI's original headquarters), whose ~99% savings in space- and water-heating energy (to –44°C or –47°F) and ~90% in home electricity paid back in ten months with 1983 technology. It was later credited with inspiring the German and hence European passive house movements. An $18-million utility experiment he cofounded and -steered in the 1990s, PG&E's "ACT^2," validated his claim that very large energy savings could cost less than small or no savings, *e.g.* in houses comfortable with no air conditioner at up to +46ºC (+115°F) yet costing less to build. He cofounded, led, and spun off from RMI, which in 1999 sold it to the *Financial Times* group, the premier source of information on advanced electric efficiency (www.esource.com). He also founded and until 2007 chaired RMI's fourth spinoff, the advanced-composites technology developer Fiberforge Corporation, which developed and sold to a Tier One pressmaker the fastest process for thermoplastic advanced-composite layup. Mr. Lovins has led or co-led the redesign of >$40 billion worth of industrial plants with unrivaled efficiency, and helped major firms adopt the tenets of *Natural Capitalism* (www.natcap.org), which shared the 2001 Shingo Prize (Research), the "Nobel Prize for Manufacturing." In 2004, he led a Pentagon-cosponsored synthesis of how to eliminate U.S. oil use, led by business for profit (www.oilendgame.com). Its controversial insights proved conservative, just as his latest book with 60 RMI coauthors, *Reinventing Fire* (2011), is tracking accurately to actual market evolution in efficiency and renewables.

Mr. Lovins's main recent efforts include supporting RMI's collaborative synthesis, for China's National Development and Reform Commission, of an ambitious efficiency-and-renewables trajectory that informed the 13th Five Year Plan (as *Natural Capitalism* had influenced the 11th); helping the Government of India transform mobility to be shared, connected, and electric; and exploring how to make integrative design the new normal, so investments in energy efficiency

are severalfold larger, often with increasing returns. His most influential recent peer-reviewed papers, in *Environmental Research Letters*, are "How Big is the Energy Efficiency Resource?" (2018) and "Recalibrating Climate Prospects" (2019).

Mr. Lovins has advised the leaders of such firms as Coca-Cola, Deutsche Bank, Ford, Holcim, Interface, Wal-Mart, and several startup firms. His clients have also 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, EDS, 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 has been profiled in *The Wall Street Journal* (twice), *Fortune*, *Harvard*, *The New Yorker*, and *The Economist*.

Mr. Lovins has briefed 30+ heads of state, given expert testimony in eight countries and 20+ states, delivered thousands of lectures, and published 31 books and 650+ papers, as well as poetry, landscape photography, music (he was a pianist and composer), and an electronics patent. In 1980–81 he served on the U.S. Department of Energy's senior advisory board, and in 1999–2001 and 2006–08, on Defense Science Board task forces on military energy strategy. He served in 2013–14 on the Chief of Naval Operations' Advisory Board and in 2011–18 on the National Petroleum Council. 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. He serves on the Executive Board of the Renewable Energy Institute (Japan), the Advisory Board of The Norman Foster Foundation, and the Advisory Council of the Oxford Martin School, and is Hon. Chairman of the Global Passive Building Council and an Associate Editor of the Society of Automotive Engineers' *J-STEEP* journal.

Dr. Alvin Weinberg, former Director of Oak Ridge National Laboratory, called him "surely the most articulate writer on energy in the whole world today"; *Newsweek*, "one of the Western world's most influential energy thinkers." 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." *The Wall Street Journal*'s Centennial Issue named him among 39 people in the world most likely to change the course of business in the 1990s; *Car* called him the 22nd most powerful person in the global car industry; and *The Economist* wrote in 2008 that "history has proved him right." The editors of three electricity trade journals have also given him top marks among all experts in shaping and foreseeing that industry's transformation.

An occasional advisor to the National Association of Regulatory Utility Commissioners and World Business Council for Sustainable Development, Mr. Lovins has addressed hundreds of fora sponsored by such groups as The Engineering Foundation, Association of Energy Engineers, ASHRAE, American Institute of Chemical Engineers, Society of Automotive Engineers, CAR, [UK] Royal Academy of Engineering, [US] National Academy of Sciences, NSF, Council of Scientific Society Presidents, American Physical Society, seven USDOE National Laboratories, International Association for Energy Economics, Montreux Energy Forum, International Energy Agency, World Energy Conference, [UK] Institution of Electrical Engineers, McKinsey and Company, Accenture, Xyntéo, Goldman Sachs, Merrill Lynch, JPMorgan, Morgan Stanley, Swiss Re, Bloomberg New Energy Finance, Allen & Co., Forstmann-Little Conference, Council on Competitiveness, News Corporation, *Fortune*, *Forbes*, *Time*, *Wall St. J.*, Urban Land Institute, Industrial Development Research Council, CoreNet, American Institute of Architects, Greenbuild, Air Transport Action Group, ICAO, American Petroleum Institute, American Association of Petroleum Geologists, Society of Plastics Engineers, Oslo Energy Forum, American Gas Association, PowerCon [insurance], Edison Electric Institute, Electric Power Research Institute, Global Philanthropy Forum, Hoover and Brookings Institutions, Center for Strategic and International Studies, Chatham House, Council on Foreign Relations, Pacific Council, Asia Society, Commonwealth Club, Keidanren, Conference Board, World Economic Forum, Tällberg Conference, TED, FiRE, eg, Techonomy, VERGE, Renaissance Weekend, World Bank, International Monetary Fund, Global Business Network, Highlands Forum, [US] Naval Postgraduate School, Naval War College, National Defense University, Aspen Design Conference, Design Futures Council, [UK] Royal Society, and [UK] Royal Society of Arts.

Mr. Lovins has contributed to disciplines ranging from physics to law and healthcare to linguistics. He collaborates on landscape photography with his wife, Judy Hill Lovins (www.judyhill.com); his photographic art was exhibited by Bill Brandt in London's Victoria & Albert Museum in 1975, and their joint work was lately hung in US shows. A mountain guide ~100 days a year 1964–80, his current avocations include great-ape language and conservation, Taoism, and writing.