

Disruptive Oil and Electricity Futures

4 December 2015 – GL102 – 1300

With Dr. Armory Lovins

CEO, Rocky Mountain Institute

Abstract:

As it confronts troubling fundamentals, the global oil industry's most basic challenge is not lowered prices but weakening demand, as customers find powerful new ways to save or displace oil. Oil suppliers are more at risk from competition with those new technologies than from climate regulation. Every significant global market for oil, and increasingly for natural gas too, is challenged by disruptive competitors—especially on the demand side—that hydrocarbon suppliers scarcely track, from radically efficient vehicles to superior ways to get around without them (or, through smart urban design, not need to). The pace of transformation may exceed what oil companies' culture can manage. As the world begins to embrace a low-carbon future and the prospect of profitably getting off oil by 2050, what are the strategic implications—and opportunities—for oil companies and resource owners?

Meanwhile, the electricity industry's basic assumptions since the days of Samuel Insull—ever-rising demand, ever-bigger and hence -cheaper power plants, hence falling prices—have reversed. Electricity providers face at least eight simultaneous disruptors, on both the demand and supply sides, that will transform their technologies, institutions, finances, and business models beyond recognition. These forces include severalfold more efficient use of electricity, expanding returns to efficiency investments via integrative design (so bigger savings cost less), highly competitive distributed renewables, ubiquitous flexible loads, cost-effective storage (including competitive electric vehicles), major regulatory shifts, new customer preferences and societal values, and gamechanging business models. Such transformations don't add; they multiply and exponentiate. Incumbents' efforts to fight disruptors may actually strengthen them. Navigating these rapids presents an exciting opportunity for agile entrepreneurs, an extraordinary test of the industry's leadership skills, and an opportunity to start turning power supplies from brittle to resilient.

Together, these two emergent stories of profound disruption bring into question everything we thought we knew about energy—and its strategic implications for military missions.

Abridged Biography:

Dr. Amory B. Lovins has been an innovator and practitioner in energy and its links to security, development, environment, and economy for over 40 years. He is cofounder (1982), Chief Scientist, and Chairman Emeritus of Rocky Mountain Institute—an independent, entrepreneurial, nonprofit think-and-do creating a clean, prosperous, and secure energy future. Originally a consultant experimental physicist, and author of 31 books and over 530 papers, he has received substantial recognition. In 2009, *Time* named him one of the 100 most influential people in the world, and *Foreign Policy*, one of the 100 top global thinkers.

Dr. Lovins's security background includes devising the first logically consistent approach to nuclear nonproliferation (technical papers and two books, 79–83); performing for DoD the still-definitive UNCLAS study of domestic energy critical infrastructure and resilience; codeveloping a "new security triad" of conflict prevention, conflict resolution, and nonprovocative defense; lecturing at NDU, DAU, USMA, USNA, NWC, NPS, STRATCOM, etc. on least-cost security and on how new technologies will transform missions and force structures; leading for VADM Lopez the 95–98 overhaul of NAVFAC's design process; leading a 00–01 analysis for SECNAV of how to save up to half the hotel-load electricity aboard USS Princeton CG-59; addressing ASNE 10 and the USMC Commandant's 10 expeditionary energy symposium; keynoting SECNAV's 62th Current Strategy Conference; and serving on 99–01 and 06–08 Defense Science Board panels finding cost-effective DoD fuel-saving potential later estimated by RMI to total ~66% plus avoided lift. Dr. Lovins continues to help DoD with energy strategy, electricity resilience, and platform efficiency, and has been tasked by COMNAVSEA to help transform the Naval design process. Having helped drive DoD's energy agenda for three decades, he serves on CNO's Advisory Board (CAB) and as a Professor of Practice at the Naval Postgraduate School.



Dr. Armory Lovins



NAVAL
POSTGRADUATE
SCHOOL