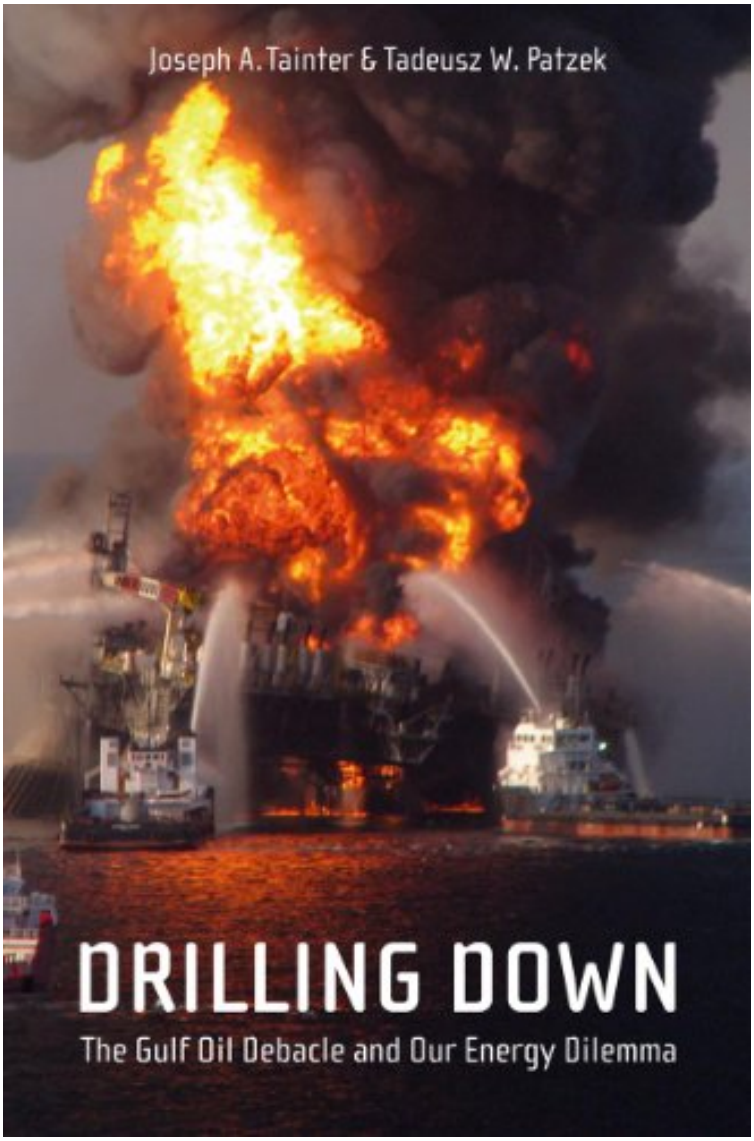
Drilling Down: The Gulf Oil Debacle and Our Energy Dilemma

Joseph A. Tainter, Tadeusz W. Patzek
*audiobook | *ebooks | Download PDF | ePub | DOC*



#1180691 in eBooks 2011-09-18 2011-09-18File Name: B00F5TW1AS | File size: 76.Mb

Joseph A. Tainter, Tadeusz W. Patzek : Drilling Down: The Gulf Oil Debacle and Our Energy Dilemma before purchasing it in order to gage whether or not it would be worth my time, and all praised Drilling Down: The Gulf Oil Debacle and Our Energy Dilemma:

1 of 1 people found the following review helpful. The Risks and Rewards of More and More . . .By blue ocotilloSimply put, this is a book a deep significance. I came across it shortly after it came out, as I was doing research for my own book, "Just a Little Bit More" (Blue Ocotillo/ACTA, 2014), that deals with excess and over-consumption. Scholars Joseph Tainter (anthropologist, Utah State University) and Tad Patzek (engineer, University of Texas-Austin)

detail the Deepwater Horizon tragedy by way of backdrop for the rest of their story: whether or not "we can plan on a future that requires still more oil" (p. 5). Before shucking this book aside as the fracking boom would seem to nullify concerns about the future of oil in America, know that the authors approach this important subject with scholarship, experience, and a (politically) non-partisan demeanor.I was introduced to two crucial concepts by reading this book: EROEI (energy returned on energy invested) and the energy-complexity spiral. The first concept is self-explanatory; the authors tell how back in the early days of oil discovery the EROEI quotient was around 100:1. Today - as evidenced by the doomed Deepwater Horizon platform which cost more than $1 billion to produce - EROEI for oil worldwide is about 18:1. Tainter and Patzek claim a complex modern society (such as ours) needs at least a 5:1 net energy ratio to succeed. Tellingly, some of the politically charged tar sands from Canada will be processed with an EROEI as low as 3:2 . . .The energy-complexity spiral concept is, once grasped, fascinating and obvious. Remember the hand crank window on your older model car a few years ago? It got to be balky as the car aged, but getting it fixed when it eventually broke didn't cost you and arm and a leg. And, you could fix it yourself if you were so inclined. Nowadays, the motorized window on your newer car is convenient and easy to use, but it will cost you at least $700 to fix, and that includes taking it in to an experienced mechanic to get the job done right. Tainter and Patzek tell us that as society advances (motorized windows over manual), more and more energy is required. There is no going back on the current trajectory. Smart phones are an incredible advance over the flip phones of a decade ago, but they require much more energy to produce and operate. Is this trajectory sustainable? More and more is required, and the risks and rewards confront not only us but also those who follow after us.These comments only scratch the surface of this important book. I can't recommend it enough for those who are concerned about society's current and future paths.2 of 2 people found the following review helpful. A Very Important Book!By FlagmanThis is a very important book that ought to be read by everyone who is concerned with the future of industrial civilization. The links between energy and consumption, and energy and environment, are widely appreciated, but are only part of the story. A more general picture emerges when environment is broadened to ecology, as done by William Catton, Jr. in his under-appreciated book, Overshoot: The Ecological Basis of Revolutionary Change (University of Illinois Press, 1982). An even more general picture emerges when one incoporates the link between energy and complexity, as done Joseph Tainter in his classic book, The Collapse of Complex Societies, Cambridge University Press, 1988.Drilling Down, by Joseph Tainter and Tadeusz Patzek, is in part a reiteration of ideas contained in Tainters earlier book. However, the ideas are expressed more compactly and benefit from more than two decades of additional refinement. This aspect of the book can be thought of as 'Tainter Lite'. The book also provides a detailed description of the Deepwater Horizon environmental disaster, with much technical detail provided. This illuminates the complexity of modern energy extraction systems. It also provides a real-world context and case study for the presentation of Tainter's framework of an energy-complexity spiral that governs, and probably dooms, industrial civilization. The overall approach certainly got my attention. I consider this book to be a must-read (along with Catton's book) for anyone who is ready to venture beyond the happy talk of 'sustainable development'.The execution of the book is less polished than it could be. The very obvious grafting of two authors' separate contributions may be inevitable. The production seems more like that of a high quality self-published book than a Springer imprint; and the font that is used for the number '1' makes some numbers look like the names of freeways and is a general distraction. However, in the big picture these are minor points that do not cause the loss of a star.2 of 3 people found the following review helpful. Drilling Down: Fascinating content, needs editingBy JPPWith hesitation, I deliver this review of trivialities in the periphery of the important message of the book.I'm only part way into the book, so I cannot comment fully on the content. So far it's a fascinating read, and it promises more of the same. My admittedly premature review is mostly about the editing in a book at this price bracket. All chapters have a duplicate abstract, not a summary, text portion at the start plus work addresses of the authors before the abstracts. The footnote links work, but the destination text needs to be panned to be fully readable on a small screen Kindle. I do not know if these are required in a scientific work, but they are distracting.In chapter 3, at around the 12% mark, a full list of derived energy units is missing, only the bullit points are there.

For more than a century, oil has been the engine of growth for a society that delivers an unprecedented standard of living to many. We now take for granted that economic growth is good, necessary, and even inevitable, but also feel a sense of unease about the simultaneous growth of complexity in the processes and institutions that generate and manage that growth. As societies grow more complex through the bounty of cheap energy, they also confront problems that seem to increase in number and severity. In this era of fossil fuels, cheap energy and increasing complexity have been in a mutually-reinforcing spiral. The more energy we have and the more problems our societies confront, the more we grow complex and require still more energy. How did our demand for energy, our technological prowess, the resulting need for complex problem solving, and the end of easy oil conspire to make the Deepwater Horizon oil spill increasingly likely, if not inevitable? This book explains the real causal factors leading up to the worst environmental catastrophe in U.S. history, a disaster from which it will take decades to recover.

From the reviews:ldquo;Tainter and Patzek use the story of Gulf oil spill as the background for discussing the energy-

complexity spiral, and its relationship to this accident. hellip; Drilling Down touches on many interesting topics, from details about how extraction is done hellip; to overviews of how various civilizations have dealt with rising complexity and reduced energy flows. hellip; The book is well worth hellip; . With one detail-oriented author, and one lsquo;big picturersquo; author, the book includes something for everyone.rdquo; (Gail Tverberg, Financial Sense, September, 2011)From the Back CoverFor more than a century, oil has been the engine of growth for a society that delivers an unprecedented standard of living to many. We now take for granted that economic growth is good, necessary, and even inevitable, but also feel a sense of unease about the simultaneous growth of complexity in the processes and institutions that generate and manage that growth. As societies grow more complex through the bounty of cheap energy, they also confront problems that seem to increase in number and severity. In this era of fossil fuels, cheap energy and increasing complexity have been in a mutually-reinforcing spiral. The more energy we have and the more problems our societies confront, the more we grow complex and require still more energy. How did our demand for energy, our technological prowess, the resulting need for complex problem solving, and the end of easy oil conspire to make the Deepwater Horizon oil spill increasingly likely, if not inevitable? This book explains the real causal factors leading up to the worst environmental catastrophe in U.S. history, a disaster from which it will take decades to recover.A world expert on oil technology and one of our foremost social commentators, the author of ldquo;The Collapse of Complex Societies,rdquo; join forces to:Lead you on a fascinating tour from the events on the Deepwater Horizon to the processes in society that made the tragedy nearly inevitableExplain the energy-complexity spiral that governs our way of lifeTake you beyond the headlines, finger pointing, and political punditry to the underlying causes of the Gulf catastropheHelp decision-makers from all walks of life to understand the risks and challenges of managing complex organizationsDiscuss energy options for the futurePraise for Drilling Down:In this book, Joseph Tainter and Tadeusz Patzek use the Gulf oil spill as a point of entry to discuss our energy future. For those of us who watched the oil spill from afar, this book provides the technical background to help us understand it, something that was never available from the media. For those like me, who are interested in the role of energy in the rise and fall of civilizations, this is a must read.--Lester R. Brown, President of Earth Policy Institute and author of World on the EdgeAbout the AuthorJoseph A. Tainter is Professor of Sustainability in the Department of Environment and Society, Utah State University, having previously served as Department Head. He received his Ph.D. in Anthropology from Northwestern University in 1975. Dr. Tainter worked on issues of sustainability before the term became common, including his highly-acclaimed book The Collapse of Complex Societies (Cambridge University Press, 1988). He is co-editor of The Way the Wind Blows: Climate, History, and Human Action (Columbia University Press, 2000), a work exploring past human responses to climate change. With T. F. H. Allen and Thomas Hoekstra he wrote Supply-Side Sustainability (Columbia University Press, 2003), the first comprehensive approach to sustainability to integrate ecological and social science. Dr. Tainter has taught at the University of New Mexico and Arizona State University. Until 2005 he directed the Cultural Heritage Research Project in Rocky Mountain Research Station. Dr. Tainterrsquo;s sustainability research has been used in more than 40 countries, and in many scientific and applied fields. Among other institutions, his work has been consulted in the United Nations Environment Programme, UNESCO, the World Bank, the Rand Corporation, the International Institute for Applied Systems Analysis, the Beijer Institute of Ecological Economics, the Earth Policy Institute, and the Technology Transfer Institute/Vanguard. Dr. Tainter has been invited to present his research at the Getty Research Center, the University of Paris (Pantheacute;on-Sorbonne), the Royal Swedish Academy of Sciences, and many other venues. His research has been applied in numerous fields, including economic development, energy, environmental conservation, health care, information technology, urban studies, and the challenges of security in response to terrorism. He appears in the film The 11th Hour, produced by Leonardo DiCaprio, Leila Conners Petersen, Brian Gerber, and Chuck Castleberry, and in the ABC News special Earth 2100. His biography has been included in Whorsquo;s Who in the World, Whorsquo;s Who in America, and Whorsquo;s Who in Science and Engineering. Dr. Tainterrsquo;s current research focuses on sustainability, energy, and innovation.Tad Patzek is the Lois K. and Richard D. Folger Leadership Professor and Chairman of the Petroleum and Geosystems Engineering Department at The University of Texas at Austin. He also holds the Cockrell Regents Chair #11. Between 1990 and 2008, he was a Professor of Geoengineering at the University of California, Berkeley. Prior to joining Berkeley, he was a researcher at Shell Development, a unique research company managed for 20 years by M. King Hubbert of the Hubbert peaks. Patzekrsquo;s current research involves mathematical and numerical modeling of earth systems with emphasis on fluid flow in the subsurface soils and rocks. He works on the thermodynamics and ecology of human survival, especially on the global food and energy supply systems. More recently, Patzek has engaged in the studies of complex systems, focusing on the ultra deepwater offshore operations. He briefed Congress on the BP Deepwater Horizon well disaster in the Gulf, and was a frequent guest on NPR, ABC, BBC, CNN, and CBS programs. For the last two years, Patzekrsquo;s research has emphasized the use of unconventional natural gas as a fuel bridge to the possible new energy supply schemes for the U.S. He appeared in the Haynesville Shale documentary. Currently, Patzek teaches courses in petroleum engineering, hydrology, ecology and energy supply, computer science, and mathematical modeling of earth systems. Patzek is a coauthor of over 200 papers and reports, and is writing five books.nbsp;In March 2011,nbsp;he was chosen bynbsp;US Interior Secretary Ken Salazarnbsp;to

serve on the Ocean Energy Safety Advisorynbsp;Committee,nbsp;a permanent advisory body providing critical guidance on improving offshore drilling safety, well containment, and spill response offshore.