

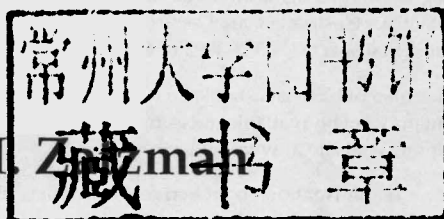
# SUSTAINABLE **ENERGY** PRICING

Nature, Sustainable Engineering, and  
the Science of Energy Pricing

Gary M. Zatzman

# Sustainable Energy Pricing

Gary M.



 WILEY

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*The following work is dedicated to all those men and women of science,  
and of conscience, who continue in all conditions to seek truth from facts  
to serve people*

# Acknowledgements

All judgments and any potential errors expressed in this book (and in the companion volume entitled *Sustainable Resource Development: How to Achieve Zero-Waste and Sustainability in Energy Engineering*) are entirely my own. Along the way down this path, however, I have shared the company of various personal, intellectual and professional fellow-travelers. Here is where I acknowledge publicly my appreciation and thanks — some personally, some collectively but anonymously, some even posthumously — for their inspiration, help and support through the processes of this book's eventual gestation and birth pangs.

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A dense and often toxic fog of disinformation engulfs the truth about how the modern economy actually robs Humanity of so much of its true potential. The inspiration to produce a work about sustainable development that would cut through all that originated personally for me from the life and work of Hardial Bains (1939-1997). With his co-workers, he elaborated the "necessity for change" analysis more than 45 years ago that continues — among its many other benefits too numerous to catalogue here in this brief space — to open the eyes of new generations about the tricks, traps and prejudices of Eurocentric outlook in world politics and economics.

The idea of taking such an outlook and applying it to examine how the economics and engineering of resource development could be turned towards genuinely sustainable development that would no longer rape the natural environment was the gift of Prof. Mohamed Rafiq Islam, the editor of the series of which the present book forms part. His confidence in my ability to nail the question squarely and his unflagging personal, academic and intellectual support, along with that of his sons Jaan and Ali Omar, produced a number of life-altering moments en route to delivery of the final version of this book's manuscript to the publisher.

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On a closing professional note, I have been very lucky to be able to collaborate professionally with Phil Carmical and his team at Scrivener Publishing, whose confidence in my abilities sustained us through one or two darker moments.



# Preface

This volume, like its companion volume (*Sustainable Resource Development*), is organized into an introductory chapter, seven chapters of content and an appendix. The underlying question posed throughout this book is: Does resource extraction — and the subsequent economic development patterns dependent on those processes of primary energy-source production — have to end badly for the natural environment? Accordingly, the chapters create their dissonant atonal symphony, exploring a number of aspects of economic theory and where they fit — or more properly: fail to fit — any rational plan of sustainable development. The appendix supplies the coda, in the form of an exploration of aspects of the 500-year history of commercial exploitation of the ocean fisheries on the Continental Shelf of the northwest Atlantic. It is not an understatement to say that, for the first 470 years, the harvesting of these resources posed little or no threat either to the marine environment nor to the present or future prospects of the coastal communities most involved in this activity. However, in the last 30 years of that half-millennium, what remained was literally raped from stem to stern at unprecedented speed. The historical exegesis brings out in striking manner how far off-base both the promoters of this fishery and its critics actually were with regard to the conduct of this fishery in modern economic conditions of vertically-integrated resource extraction. None of them manifested the slightest awareness of how this fishery could have averted the dramatic collapse that eventually destroyed the livelihood of the families of more than 40,000 commercial fishermen from the Canadian provinces of Newfoundland and Labrador, Quebec and Nova Scotia after 1992. This dialogue of the deaf was manifest not only in the late 1970s — as the struggle over the northwest Atlantic fisheries' future

heated up to become one of the sideshows of the global confrontation between the U.S. and Soviet superpowers over control of the world's oceanic spaces. The same thinking that failed to address the problems of that time was being repeated 30 years later by some of the most vociferous critics of the antics of the trawling fleets, Canadian and foreign, back in the 1970s.

Finally, a word about the subtitle of this book: "Creating A Sustainable Environment and Economy Through a New Science of Energy Pricing." Just to clarify the matter up front for the reader: the author does not actually set out a "science of energy pricing." The aim of this book is to initiate that process by preparing the necessary groundwork.

The late Nobel physics laureate Richard Feynman, in his 1985 autobiographical memoir *'Surely You're Joking, Mr. Feynman': Memoirs of a Curious Character*, set forth his vision of the meaningful content of the notion of "scientific integrity" in an arresting manner, with an anecdote from the annals of actual scientific research in the field of behavioral psychology. Although students in the field are carefully schooled in the concept of "conditioned stimulus – conditioned response" (CS-CR) including spending hours in the laboratory with mice running various experiments premised on the truth of this fundamental notion, what Feynman learned was that students are never steered towards actually testing the veracity of the CS-CR hypothesis itself, viz., that the response of the mammalian brain can be trained or conditioned by a consciously-planned series of stimuli. Looking further into the matter, he uncovered a research paper published before the Second World War whose author deliberately attempted to replicate the original experiments of John Watson purporting to demonstrate the CS-CR hypothesis. The investigator relaxed the condition that CS-CR be assumed true and sought alternative explanations for the lab mice's responses to various conditioned stimuli. He narrowed down one-by-one all other possible physical causes for the stampeding of the mice through the experiment's "maze" apparatus to get their "food" reward. He found the strongest and most positive correlation existed between the level of vibration of the boards of the raceways in the apparatus and when mice from various points inside the apparatus found their way through the correct series of tunnels in the maze to the reward-point. As he removed all possible sources of vibratory transmission from inside the apparatus, he reached a point where the response of the mice could no longer be

said to correspond to the original stimulus. Feynman noted that he could find no references to this experiment anywhere in the literature: it disappeared, or perhaps was “disappeared” by those who sniffed its devastating implication that the CS-CR hypothesis itself was unproven. Feynman hailed the experiment for its profound pædagogical value as a basic primer in scientific integrity — and for teaching everything one would need to know about how to verify the CS-CR hypothesis experimentally.

In this book and the above-mentioned companion work, neither is any cookbook recipe provided for guaranteeing sustainable pricing of energy, nor is it suggested that there is any guaranteed or specific way of arriving at sustainable energy pricing. However, every effort has been made to supply the reader with everything needed for implementing a positive intention to develop and implement practical steps of various kinds towards such a goal.

# Contents

<b>Acknowledgements</b>	<b>xiii</b>
<b>Preface</b>	<b>xv</b>
<b>Introduction</b>	<b>1</b>
0.1 Requirements of a Sustainable Energy Pricing Model	9
0.1.1 Some General Issues	9
0.1.2 Sustainability Criteria and Economic Theory	15
0.1.2.1 Sustainability for whom?	17
0.1.3 The Basis of Change and the Conditions of Change	19
0.1.4 Linearities that Fail to Straighten Anything Out	22
0.1.5 The Information/Disinformation Nexus	24
0.1.6 Perception, Truth and Aphenomenality	27
0.2 Outline of the Contents of this Volume	30
<b>1 Fundamental Notions</b>	<b>37</b>
1.1 "Energy Crunch" or: The Problems and Issues of Modeling an Energy Price	39
1.1.1 Commodification: The General Capital-centred Theory	44
1.1.2 Energy as Social Product	48
1.1.3 Cultural Bias and Energy Price Modeling	53
1.1.4 Commodification: The Special Theory of Modern-day Time Compression	61
1.2 Matter, Energy, and Efficiency from Scientific Standpoint	66



1.3	Truth as a Scientific Frame of Reference	69
1.3.1	Eurocentric Distortion of Scientific Truth as a Frame of Reference	74
1.4	Phenomenally-based Sustainability: The Nature-science Criterion	80
1.5	Value Assessment, Value Addition and Phenomenally-based Energy Pricing	94
1.5.1	The Role of Value Assessment and Value Addition	95
1.6	Newtonian 'Mechanism' and Mystification of How Value is Transformed into Price	104
1.7	Risk Assessment & Management and Aphenomenal Energy Pricing	107
1.7.1	Energy Pricing based on Fictions: The Case of Enron	110
1.8	The Temporal Criterion of Long-term Sustainability and its Implications	116
<b>Documents</b>		<b>118</b>
A.	Timeline of Critical Events for Enron in the Period August 2001 to December 2001	118
B.	Enron Segment and Stock Market Performance 1993–2000	119
C.	The Temporal Horizon In Which Diligence Can Become Undue	119
D.	Darwinian Pessimism and the Foreshortening of Temporal Horizons	123
E.	Enron and the Foreshortening of Temporal Horizons	125
2	<b>Newtonian Mechanism and The Deconstruction of Scientific Disinformation</b>	<b>137</b>
2.1	Introduction	139
2.1.1	What is the Issue?	139
2.2	Einstein's Relativity and Newton's Mechanism Compared	140
2.3	Newton's First Assumption	142
2.3.1	First Level of Rectification of Newton's First Assumption	148

2.3.2	Second Level of Rectification of Newton's First Assumption	150
2.3.2.1	Can We Take for Granted that Masswill Remain Constant?	150
2.4	Fundamental Assumptions of Electromagnetic Theory	153
2.4.1	Can Energy Propagate Throughout Space in the Absence of Mass?	153
2.5	The Engineering Approach and Its Significance	175
2.6	First Conclusions	180
2.7	Continuity and Linearity	182
2.7.1	Confusion Twice Confounded	182
2.7.2	It's Really About Time...	187
2.7.3	"Laws of Motion", "Natural Law" & Questions of Mutability	197
3	<b>Offshore Networks of Control: Providing Short-Term Multi-Entity International Oil and Gas Plays with a Guarantee</b>	209
4	<b>Current Energy Pricing Models: Origins &amp; Problems</b>	223
4.1	Consumption without Production	226
4.1.1	Description of the Problem and its Visible Impacts	226
4.1.2	Disinforming Impacts of Consumption without Production	242
4.2	Imposed Energy Pricing	246
4.3	Inherent Features of the Current Energy-Pricing Model: Matters Affecting Individuals' Daily Existence	256
4.3.1	Introducing the R-D-R' Cycle	266
4.4	Societal Implications of the Current Energy-Pricing Model for the Long Term	269
4.4.1	Why Does the Writ of the "Competitive Advantage of Nations" Seem To Stop At the Shores of OPEC Member-States?	272
4.4.2	Disappearing the Source of Energy Commodities' Value Behind Scientifically Meaningless Discourses about "Rent"	281

4.4.3	How Comparative Pricing Theory & Cost-accounting Practices of the Oil & Gas Sector Further Confound Resource rent	289
4.5	Long-term vs Short-term Returns-on-investment [ROI] From Energy Exploration & Development	296
4.5.1	An Oil-Sands Boom without Bust?	299
4.6	Resource "Renewability" and 'Sustainable Negative Rent'	304
<b>5</b>	<b>The Role of Coal in the Modern Evolution of Energy Pricing</b>	<b>309</b>
5.1	Introduction	309
5.2	Significance of Commodifying Labor-time & All Material Production — Including its Energy Source	313
5.2.1	Significance of the Napoleonic Wars	318
5.2.2	The Reform Act of 1832	321
5.2.3	Britain & France Compared	323
5.2.4	Jevons as Ideologue of Coal & "Marginal Utility"	329
5.3	From "Law of Supply & Demand" ( <i>at the margin</i> ) to "Consumption without Production"	335
	<b>Document</b>	<b>338</b>
A.	History of U.S. Coal Use [extract]	338
<b>6</b>	<b>Carbon Emission Credits — Theory &amp; Practice</b>	<b>341</b>
6.1	Introduction	341
6.1.1	THEORY — Regime	342
6.1.2	THEORY — "Additionality"	346
6.1.3	THEORY — Sustainability and a "Universal Equivalent"	348
6.1.4	THEORY — Market	351
6.1.5	PRACTICE — Real-world Carbon Trading Mechanisms	354
6.1.6	PRACTICE — Some Real-world Emission-Reduction Scenarios Considered	362
6.1.7	PRACTICE — Criticisms and Shortcomings of Practical Carbon Credit Regimes	365

6.1.8 PRACTICE — Emissions Reduction	
Currency Systems	366
<b>Documents</b>	<b>371</b>
A. The Kyoto Clean Development Mechanism	
Gold Standard	371
B. Thoughts on the Relative Merits of	
Cap-and-Trade Versus Emission	
Taxes for Controlling Carbon Emissions	372
C. U.S. House Passes Repeal of EPA	
Carbon Rules Over White House Objections	378
D. Carbon Trading: A Method for Preserving	
the Environment and Reducing Poverty	380
E. Canadian Law with Regard to Carbon	
Emission Regulation	387
F. Carbon Capture and Storage - Identified challenges	
to implementation	392
G. North America Bets on "Carbon Capture and	
Storage" (CCS)	400
H. Canadian Implications of U.S. Climate Change	
Regulation	406
I. The Taxation of Tradable Permits	411
J. Ottawa Unveils Carbon-offset System	416
K. Ontario Introduces Cap-and-trade Legislation	419
L. Canada Moves Forward on Domestic	
Emissions Trading Market	421
M. Carbonmail?	424
<b>7 "Peak Oil" and Other Fits of Pique Among</b>	
<b>Resource Economists</b>	<b>435</b>
7.1 Introduction	435
7.2 Human Factor Social Consciousness &	
"Abstracting Absence"	453
<b>Document</b>	<b>460</b>
A. The Achnacarry Agreement and the "As Is" System	465
B. The Entry of Kuwait onto the World Market	467
C. Aramco and the Containment of Saudi	
Arabian Expansion	471
D. Notes	473



<b>Bibliography</b>	477
Introductory Note	477
I. Bibliography	478
II. Websites	518
<b>Appendix -Disinformation in the Social &amp; Historical                   Sciences: Concerning Time Functions and                   Sustainability of Resource Development</b>	521
A.1 Introduction	521
A.2 Detaching Canada's East Coast Fishery From Its History: Causes and Consequences	523
A.3 The Mishandling of Temporal Factors Analysed as a Problem of Method	529
A.4 Social Science and The Problem of Linearised Time	536
A.5 Placing $t_{\text{LINEAR}}$ on Life Support	543
A.6 Merchant's Capital – Key Historic Intangible of The East Coast Fishery	555
A.7 The 800-Pound Gorilla	563
<b>Index</b>	575