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Soggetti	Energy policy Sustainable development Environmental economics Sociophysics Econophysics Economic geography Energy Policy, Economics and Management Sustainable Development Environmental Economics Data-driven Science, Modeling and Theory Building Economic Geography
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Nota di contenuto	Part I Energy and the Origins of Wealth -- Poverty, Wealth, and Human Ambition -- Energy and Wealth Production: An historical perspective -- The Petroleum Revolution I: The first half of the age of oil -- Part II Energy, Economics and the Structure of Society -- Explaining Economics from an Energy Perspective -- The Limits of Conventional Economics -- The Petroleum Revolution II: Concentrated Power and Concentrated Industries -- The Postwar Economic Order, Growth and the Hydrocarbon Economy -- Globalization and Efficiency -- Are there Limits to Growth? Examining the Evidence -- Part III Energy and Economics—the Basics -- What is Energy and How is it Related to

Wealth Production? -- The Basic Science Needed to Understand the Relation of Energy to Economics -- The Required Quantitative Skills -- Economics as Science: Social or Biophysical? -- Part IV The Science Behind How Economies Work -- Energy Return on Investment -- Peak Oil, EROI, Investments and Our Financial Future -- Access to Energy and Social Inequality -- The Role of Economic Models for Good and Evil -- How to do Biophysical Economics -- Part V Understanding How Real World Economies Work -- Peak Oil, the Great Recession and the Quest for Sustainability -- Energy, Climate Science, and Planetary Boundaries -- Living the Good Life in a Lower EROI World.

Sommario/riassunto

In this updated edition of a groundbreaking text, concepts such as energy return on investment (EROI) provide powerful insights into the real balance sheets that drive our “petroleum economy.” Hall and Klitgaard explore the relation between energy and the wealth explosion of the 20th century, and the interaction of internal limits to growth found in the investment process and rising inequality with the biophysical limits posed by finite energy resources. The authors focus attention on the failure of markets to recognize or efficiently allocate diminishing resources, the economic consequences of peak oil, the high cost and relatively low EROI of finding and exploiting new oil fields, including the much ballyhooed shale plays and oil sands, and whether alternative energy technologies such as wind and solar power can meet the minimum EROI requirements needed to run society as we know it. For the past 150 years, economics has been treated as a social science in which economies are modeled as a circular flow of income between producers and consumers. In this “perpetual motion” of interactions between firms that produce and households that consume, little or no accounting is given of the flow of energy and materials from the environment and back again. In the standard economic model, energy and matter are completely recycled in these transactions, and economic activity is seemingly exempt from the Second Law of Thermodynamics. As we enter the second half of the age of oil, when energy supplies and the environmental impacts of energy production and consumption are likely to constrain economic growth, this exemption should be considered illusory at best. This book is an essential read for all scientists and economists who have recognized the urgent need for a more scientific, empirical, and unified approach to economics in an energy-constrained world, and serves as an ideal teaching text for the growing number of courses, such as the authors’ own, on the role of energy in society. Includes several new chapters and comprehensive updates addressing the implications of hydraulic fracturing (fracking), access to energy and social inequality, as well as climate science and planetary boundaries Integrates energy and economics by combining natural and social sciences Uses predictive tools and measures, such as EROI, to show how the economy is embedded in a biophysical world subject to scientific rules and constraints Provides a fresh approach to economics for those wondering “What’s next?“ after the Great Recession and continued volatility in energy prices Offers economic analysis from the real-world perspective of peak oil, high energy prices, the role of alternative energy sources, and potential environmental impacts of energy use such as climate change.