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Autore	Emanuel Alexander Eigeles
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Descrizione fisica	1 online resource (284 p.)
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Soggetti	Electric charge and distribution Wave mechanics Electric power transmission
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Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Front Matter -- Electric Energy Flow: Physical Mechanisms -- Single-Phase Systems With Sinusoidal Waveforms -- Single-Phase Systems with Nonsinusoidal Waveforms -- Apparent Power Resolution for Nonsinusoidal Single-Phase Systems -- Three-Phase Systems with Sinusoidal Waveforms -- Three-Phase Nonsinusoidal and Unbalanced Conditions -- Power Definitions for Time-Varying Loads -- Appendices -- Index.
Sommario/riassunto	Professor Emanuel uses clear presentation to compare and facilitate understanding of two seminal standards, The IEEE Std. 1459 and The DIN 40110-2:2002-11. Through critical analysis of the most important and recent theories and review of basic concepts, a highly accessible guide to the essence of the standards is presented.Key features:. Explains the physical mechanism of energy flow under different conditions: single- and three-phase, sinusoidal and nonsinusoidal, balanced and unbalanced systems. Starts at an elementary level and

becomes more complex, with six core chapters and six appendices to clarify the mathematical aspects. Discusses and recommends power definitions that played a significant historical role in paving the road for the two standards. Provides a number of original unsolved problems at the end of each chapter. Introduces a new nonactive power; the Randomness power.Power Definitions and the Physical Mechanism of Power Flow is useful for electrical engineers and consultants involved in energy and power quality. It is also helpful to engineers dealing with energy flow quantification, design and manufacturing of metering instrumentation; consultants working with regulations related to renewable energy courses and the smart grid; and electric utility planning and operation engineers dealing with energy bill structure. The text is also relevant to university researchers, professors, and advanced students in power systems, power quality and energy related courses.