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# Modeling, Analysis and Optimization of Process and Energy Systems

By F. Carl Knopf



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Energy costs impact the profitability of virtually all industrial processes. Stressing how plants use power, and how that power is actually generated, this book provides a clear and simple way to understand the energy usage in various processes, as well as methods for optimizing these processes using practical hands-on simulations and a unique approach that details solved problems utilizing actual plant data. Invaluable information offers a complete energy-saving approach essential for both the chemical and mechanical engineering curricula, as well as for practicing engineers.



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## **Editorial Review**

From the Back Cover

A systematic, integrated, and complete approach for minimizing energy use and reducing costs in processing plants

Energy costs impact the profitability of virtually all industrial facilities, particularly those in the chemical and bulk materials processing fields, where everyday operations call for a high demand of power. To allow readers to better understand how energy flows work in a processing plant, Modeling, Analysis, and Optimization of Process and Energy Systems follows a logical instructional path to instill basic fundamentals, while stressing the need for stronger coupling of the supply and demand sides of the energy equation. Its goal is to encourage industrial processing practices that are both environmentally and fiscally responsible.

Modeling, Analysis, and Optimization of Process and Energy Systems:

- Offers a clear and simple way to understand energy use in existing and emerging processes, and provides practical "hands-on" simulations
- Presents a targeted plan for minimizing cost and optimizing the design of a processing plant using cogeneration as an example
- Differs from other texts in this area in that all problems are completely solved, with many problems utilizing actual plant data
- Provides online videos and a detailed solutions manual
- Includes thermodynamic and energy analysis software tools provided as open source code, which encourages further development by users

An indispensable guide for solving energy optimization problems, Modeling, Analysis, and Optimization of Process and Energy Systems is an ideal resource for anyone interested in discovering new methods for minimizing energy costs and maximizing profitability. Individual chapters can be used to establish an "Energy Thread" in several engineering courses. The text is also an ideal resource for an elective course on process and energy systems engineering.

About the Author

F. Carl Knopf is the Robert D. and Adele Anding Professor of Chemical Engineering and Associate Director of the Center for Energy Studies' Minerals Processing Research Institute at Louisiana State University.

## **Users Review**

**From reader reviews:**

**Darlene Trevino:**

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**Chris Robertson:**

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**Richard Starkes:**

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