



Alternative Energy Sources and Technologies: Process Design and Operation

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Presenting a comprehensive analysis of the use of alternative sources of energy and technologies to produce fuels and power, this book describes the energy value chain from harvesting the raw material, (i.e solar, wind, biomass or shale gas) followed by analysis of the processing steps into power, fuels and/or chemicals and finally the distribution of the products.

Featuring an examination of the techno-economic processes and integration opportunities which can add value to by-products or promote the use of different sources of energy within the same facility, this book looks at the tools that can make this integration possible as well as utilising a real world case study. The case study of the operation of “El hierro” island is used as an example of the current effort towards more efficient use of the resources available.

Tackling head on the open challenges of the supply, the variability of the source and its prediction, the description of novel processes that are being developed and evaluated for their transformation as well as how we can distribute them to the consumer and how we can integrate the new chemicals, fuels and power within the current system and infrastructure, the book takes a process based perspective with such an approach able to help us in the use and integration of these sources of energy and novel technologies.

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Editorial Review

From the Back Cover

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About the Author

Mariano Martín is an Assistant professor of Chemical Engineering at the University of Salamanca and is Erasmus Visiting Professor at the University of Leeds (March 2014).

He was a Fulbright Postdoctoral Research fellow at CMU, advised by Prof. Ignacio E. Grossmann 2009-2011, a postdoctoral engineer at Procter and Gamble, Newcastle Technical Centre, 2008-2009, and obtained his PhD in Chemical Engineering in 2008 from the University of Salamanca.

Mariano Martín has published over 49 journal papers and is author of over 13 book chapters as well as leading 49 conference presentations throughout his career.

Awarded the Fulbright postdoctoral research fellowship 2009-2011 he is also a Senior Member of the American Institute Chemical Engineers professional society since 2013.

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